THE

ARCHITECTURAL MAGAZINE.

FEBRUARY, 1835.

ORIGINAL COMMUNICATIONS.

ART. I. *On Architectural Parallels.* By W. H.

"Of the first building that was raised, it might be with certainty determined that it was round or square; but whether it was spacious or lofty must have been referred to time."— *Dr. Johnson.*

WHEN enquiry is instituted by comparison, argument is the result of contrasted, and confirmation of parallel, instances. In the every-day occurrence of making any trivial selection or purchase, if there exists any want of confidence in the judgment, or any doubt of the quality of the thing to be chosen, it at once suggests the desire to see another of the kind. Should this second article be like to the first, the party is contented; but should the article be without parallel, and, in fact, no choice be left, there is still nothing evinced thereby which is likely to disturb the satisfaction of the purchaser, although the circumstance may not be alone sufficient to confer it. The mind, confirmed and resolved in the one case, as it were, by the assistance of precedent, is pleased only, in the next, that precedent does not approach it in any form of deterioration. It is in this manner that study, in reference to architecture, is successively pursued and answered. The concordance, or agreement, that appears by a parallel process of examination in buildings, furnishes manifold evidences of the same intentions on the part of their respective architects, and begets an authority for their repetition. The digressions and discrepancies which appear from this method of investigation, and which break its continuity, are the means of providing concurrent reasons, and food for speculation and research upon their points of difference. It is proposed, in following these views, to offer a few remarks, without intending to lead to any more practical or professional point than their consequent general application.

In the first place, the chronology of architecture presents the largest scope, and, indeed, the most interesting subject, for parallels. It is thus that the historical eras, progressive ages, and the rotation of alterations in building, are recognised and

impressed upon the recollection, from their most distant origin to the present hour. The remains of erections of the most remote time bespeak their date by coincidences of style, of materials, or of construction, when recorded and literary means either fail or are enveloped in the dubious shade of fable. Not only the dates, but the merits and demerits belonging to each period, may be also thus deduced. Primitive forms in building, from their invention at the call of necessity, are traced to the exalted, though still necessitous, purposes of science; and again, the various declensions in the vitiated appropriation of the means of art, and in the departure from all rules connected with art, seem to be useful in leading to a higher and more true estimation of what is really valuable. Works executed in the passing age can only be judged of with reference to those built before, and the whole range of time is open for the assimilation and comparison of their principles. New erections have most usually one distinct advantage connected with their date; namely, that of according with the prevailing customs and fashions, by which they insure, to a certain extent, the praise and support of their day. On the other hand, the performances of former days, in being compared with ours, have also their share of the shelter of prejudice. There is a very general and romantic partiality bestowed on whatever in building lays claim to age; and the contrary with regard to whatever is altogether new. As a proof of this, not many years since, a very magnificent palace in London (Carlton House), of recent erection, at a great expense, and which excited very generally expressed admiration, was coolly pulled down, and every atom removed that could denote the site, to achieve the desideratum of little more than a footpath approach to St. James's Park, which it stood in the way of: and at this time the public are very cheerfully subscribing to the complete restoration of a comparatively useless structure (the Ladye Chapel in Southwark), merely on account of its antiquity, and as a perfect specimen of its particular period of architecture.

Disregarding any popular view or opinion on this head, it is allowed by competent judges, that many ancient remains, seen even through the film of decay, far surpass, in dimensions and quality, the displays of modern times. The circumstance of travellers taking so much pains to exemplify mere matter of fact information respecting them, conveys a strong proof of the prevalence of this opinion. What are called the wonders of Egypt (wonderful even in the fact, that, though seen by so few, they should be familiar in description to so many) defy any parallel for magnitude. The beauties of Athens, so called by the undisputed opinion of the most enlightened in repute, forbid any approach to equality either in labour or art. Thus, while the original productions of former ages bring to comparative shame

the mere imitative efforts of our time, they are not impugned, in any important instances, by any attempt at rivalry.

To dismiss the subject of the illustration of dates, a second and more common, though less noticed, description of parallel examination of architectural production occurs. The multitude, considered either collectively or individually, in determining either the state or the quality of the object in contemplation, must be guided by reference to their own actual knowledge, in arriving at any certainty respecting it. This statement may appear childish and simple; but it would be found, for instance, that, if a person had presented to his view a building, the particular style of which he was utterly ignorant of, he would be more gratified, and his mind more taken up, in discussing the various properties of its materials, than in being informed that it was either in the style of Gothic or of Roman architecture. His opinion would be formed by a parallel of familiar facts within his knowledge or capacity; and the result he would arrive at would be a definite and clear notion respecting it. The most general term expressive of confirmed praise bestowed on buildings is in their being called fine, from a fine warehouse to a fine palace. The impressions that produce this encomium are derived from an almost imperceptible kind of comparison of the materials, dimensions, or costliness of the given building, with those of other edifices built for similar purposes, let their styles and details be ever so different. The same influence would also apply to many general terms of censure.

The most extensive application of the subject is, when without particular reference, either to periods or to extent, partial instances appear in architecture, which admit of being placed in a parallel point of view. It is a wide range, to trace a parallel between a building erected as the consummation of perfection in art, a Grecian temple, and that of a mere medium for a trade attraction, a London shop front: and yet their similitudes render this even a profitable and desirable subject of thought for the architect. The admired details of a cathedral may be seen transferred also by present use to an inferior erection; and wherever the principles and practices exhibited in large works can be rendered available to the ordinary purposes and objects of habitation, opportunities present themselves of deriving advantage by parallel investigation. Works such as those alluded to, could never have been intended to create a tithe of the force of impression conveyed by the originals from which they were taken; but it is, notwithstanding, owing to the similarity between them, that they receive the credit they do. The much-mentioned London University possesses a dome which is alleged to be of good proportion, and calculated to please the eye, as, in the preservation of its simplicity of form, there is scarcely a

chance of an objectionable addition being made to it. This is allowed and felt to be the case; but it is also said to resemble the form of that of St. Paul's, which had previously received the commendation of an admiring world. It never could have been meant or expected, by an imitation which is only such in form, and not in size, to attempt to produce the same power of effect as that of St. Paul's; but it does very justly claim its due share of praise, in having reminded the public of, and confirming their delight in, an object they had already fostered as a national beauty. The same is the case in all works of small importance, when, by their means, it is endeavoured to call the standard of original grandeur into further notice, and from which only they claim their worth, like a beautiful poem, which becomes more generally useful, better familiarises us with the merits of the author, when compressed into a pocket edition. The demand for large buildings, by which are implied those that are important from their extent, and costly in their details, is only trifling, in comparison with the universal occasion for moderate erections; but there is a very great expectation that these smaller ones should partake each a little, and as much as possible, of the resemblance of what is admired in the larger. On the subject of domes, it should be recollected, that, had there been in London, or even within the limits of the same land, another dome erected, of form and size equal to St. Paul's, it would have been denounced as presumptuous. In this respect a feeling exists, which corresponds to that of the pleasure derived from the inspection of a miniature in the presence of the original; while a full-sized portrait, on the contrary, always seems (in the writer's fancy) to sink upon the canvass when contrasted with the brilliancy of life.

To sum up these short observations, it has been pointed out, that architectural parallels are serviceable on three points. First, with reference to the ages of the successive origin of styles, in which history especially, and other sciences, are interested; secondly, as regarding the extent of opinion formed by parallels with common and familiar facts; and, thirdly, in review of opinions founded on such near approaches to parallel instances, as are to be found in buildings, without particular allusion to either the date of erection or the extent of dimensions. One subject has been omitted, namely, a parallel of errors; an ungrateful topic, and as such, one which cannot be too little regarded. Where anything good is designed in modern architecture, there are many ready to point out the stock whence sprang the beauty; and modern defects, also, for the comfort of their parents, can find plenty of precedents upon which to throw their blame.

London, December 20. 1834.

In the Index to our first Volume, we have inadvertently confounded the articles of this correspondent with another, who uses the same initials. The author of the above is also the author of the Essay on Heraldic Ornaments in Architecture, p. 181.; on Uniformity, p. 285.; and on Character, p. 324.

Art. II. *On Art, considered with reference to Architecture.* From the French of Quatremère de Quincy. By P.

We shall not endeavour to embrace, even in an abridged manner, all the various bearings under which the word art may be considered; so many necessary distinctions are there to be established on so extensive a subject: but we must distinguish what are called the mechanical arts, from what are called the liberal arts, or the fine arts; and we must make, under this last head, a new division, to separate from the other fine arts the art of design. It is to a portion of this art that we shall confine ourselves in the present essay, that is, to the art of architecture. Before doing this, we shall endeavour to give a very short analysis of what constitute the points of criticism common to all the fine arts; or, in other words, of the points of view under which they may be considered.

It appears to us that the art of criticism consists in the power of viewing each art in its proper class; that is to say, as to those particulars which compose its elements, or its special attributes; as to its means or capabilities, or, in other words, as to whatever composes the particular action which each art exercises on our organs and our minds; and, lastly, as to its end, that is, with regard to what composes the kind of pleasure, or impression, it produces upon us, or the wants it is designed to satisfy.

Although all the fine arts are the offspring of one common parent, they do not differ the less in their individual kinds, in the powers they possess, and in the ends they are destined to attain. They differ in their kinds, because they have not, in their respective attributes, any direct connection; except that of all depending either on utility or pleasure. They differ in their capabilities or means, because these means are limited by the diversity of the instruments employed, and by the barriers that nature has established between the organs of the body and the faculties of the mind: and they differ in their ends, which in all is that of pleasing, as much as in the different routes which they ought to follow to attain it, and in the different wants they are intended to supply.

For example, although the pleasure to be derived from harmony exists in the attributes of music, as well as in those of architecture; the difference between the means employed in

these two arts, and in the exterior organs affected by them, cause no resemblance to be found in the kind of harmony produced: and the reason is, that, in the constitution of the individual character of these two arts, the same diversity is found that exists between the sense of hearing and that of sight.

What has been said of the essential nature and suitable means employed in each art, is still more applicable with respect to what forms the end and aim of each.

Thus, there are arts, the principal end of which is to express, to paint, or to excite our passions. The means they employ are the images of things, either immaterial, as in poetry, or material, as in painting. The end of architecture, which only expresses itself in the abstract, is, to produce in us impressions resulting from ideas of order, proportion, grandeur, riches, and other like qualities. Poetry, by intellectual means, that is to say, by the interposition of ideas, presents material things to our view: architecture, by the use of material objects, presents to our understanding the most ideal affinities.

We shall not enlarge here on the details and applications of a theory which, even abridged, would form the substance of an entire volume; it will here suffice to show, that each art differs in its respective kind, in its means, and in its end. From the several modes of applying this elementary distinction, the theoretic definition of the art of architecture ought to result. Considered in its essence, or its first principles, architecture is an art founded on utility, and it is one which imitates nothing material or positive already existing in nature.

Its parts, relatively, are either evident imitations of nature, or indirectly drawn from natural objects: but, as a whole, it copies no reality; its form is nothing more to the mind than a combination of relative proportions and of reasons which please the more from their being simply expressed.

Under the head of means, we shall consider that architecture employs two kinds; namely, those of construction, which comprehend all that relates to solidity, durability, execution, &c.; and those of intellect, which tend to produce whatever may please the reason or the taste. This is what constitutes architecture one of the fine arts, or arts of genius. In its end or aim, architecture, partaking of two principles, those of utility and of pleasure, has really a double end: the one, independent of the art taken in its popular sense, is to form for man, and for the different uses of society, abodes and shelters, safe, commodious, solid; the other, to supply plans and elevations, for the arrangement of materials in such a manner, as, by their disposition, their form and combinations, their relation to each other, their proportions, their ornaments, and the agreement of their parts as a whole, to gratify the sight, and to produce in the mind

a feeling of the harmonies of nature, both in the intellectual and material world.

From this it results that architecture may be defined as a compound art, the offspring of utility and of pleasure; and, as such, it ought at once to serve and to please us, by the union of those forms which are the most suitable to the exterior wants of man, and those which bear the greatest affinity to mental and intellectual pleasures. This definition, while it embraces the universality of the uses of architecture, and indicates its twofold principle, likewise shows us the difficulties which the art presents. Obliged to serve us in pleasing us, and to please in serving us, we see that it is impossible for the natural, technical, moral, or poetical parts of the science to be widely separated.

But what affinity, it may be asked, is there between the forms required by utility in architecture, and the forms whence result the ideas of order and beauty? What analogy is there in the exactions of utility, as regards walls, pillars, and roofs, with the proportions, arrangements, and ornaments which constitute harmony and beauty? We agree that ideas of order, symmetry, and concord have their origin in the constitution of our minds; but their application to the art of building is so far from being a necessary consequence of the exercise of that art, that no people but the Greeks have ever carried its application to the point of perfection. Such was the strict connection between the useful and the beautiful among the Greeks, that, if we consider their architecture in the useful point of view, it appears to bear the stamp of utility so evidently, that it might be believed the Grecian architects never had pleasure for an object; and if we examine it with respect to beauty, we might be tempted to think that they never took into consideration the laws of necessity and utility. We must own that this happy alliance might never have been formed elsewhere; so, rare must be this equal combination of the elements of utility and pleasure, whether in the works of men, or in the organs and qualifications of their authors. It was this latter concord that gave birth to the art of architecture in Greece. From the disunion of these two elements (utility and beauty) sprang more or less alterations in the principles and taste of architects. Causes, of which we cannot here give an account, gave the superiority to the ornamental or decorative department; and the system of order, and the fundamental sense of utility, upon which ought to repose all the rules of art, were comparatively neglected. Reason was sacrificed to prejudice. Architects, charmed with the beautiful forms of antiquity, adopted them without considering how they were to be applied; and thus the exquisite concord produced by the union of utility and beauty was destroyed, and the art proportionately debased. Every art ought to have rules,

which, without restraining genius, preserve the bounds within which it may be freely exercised; but it should never be forgotten that, unless these rules have a more solid foundation than one based on arbitrary examples and authorities, whether of ancient masters or of a blind routine; and, in short, unless they rest upon a perfect accord between pleasure and utility; their inefficacy ought to bring them into discredit.

ART. III. *Plans for Rooms adapted to Houses where a Corner is curved off.* By W. H. LEEDS, Esq.

AMONG the improvements introduced of late years into street architecture, may be reckoned the practice, now generally adopted, either in building new trading streets, or altering old ones, of rounding off the angles of the corner houses. This is a great advantage, both to foot passengers and carriages, as it prevents sudden sharp turnings; nor is it less favourable to the shops so situated, inasmuch as it exposes, more conspicuously than is the case in other parts of the same line, that part of the shop which is thus turned, whether it be occupied by door or window. This system tends likewise to render the upper rooms more agreeable, provided the curve be of such extent as to allow of windows there in the several stories; because a freer and more extensive view of the street is thus commanded, and the distance to the houses on the opposite side greatly increased.

Still, many as are the advantages which recommend this mode of building the corner houses in such streets, it is not calculated to provide much space within, or to improve the rooms, except in regard to the "look-out" from the windows. As far as appearance is concerned, it must be more or less injurious to them, unless some study and contrivance be employed to produce internal regularity of plan: should this, however, be done, not only may all awkwardness be avoided, but a far greater degree of architectural effect and beauty may be attained than would be thought requisite under ordinary circumstances, where, there being no positive defect of the kind to overcome, the builder gives himself no concern about such matters, but makes his rooms of the ordinary shape.

It may be argued, that, in houses of this class, internal symmetry is of very minor importance indeed, hardly worth any particular pains to insure it. Yet, as many tradesmen let the whole of the first floors at high rents, it is surely worth while to pay some attention to what must set off the apartments to the best advantage, and what, if it should add something to the first cost of erection, would be so little, in comparison with the entire expense, as to be hardly a consideration, especially where cost seems to be disregarded in fitting up and embellishing the shop itself, both within and without.

Of the many pleasing and novel forms that might be thus applied, the annexed cuts exhibit only two, and they are not very remote from each other, being nearly the same idea differently shaped. Still they will be sufficient for our purpose, which is chiefly to lead those who may have an opportunity of introducing any thing of the kind, to exercise their ingenuity in devising such form and arrangement as may best accord with actual circumstances.

Fig. 13. shows how, with very slight contraction of space, that is, by cutting off another angle of the rooms, so as to produce a sixth side parallel to that in which the centre window is placed, the whole may be rendered perfectly symmetrical, instead of being left a truncated square, with a window facing one of its corners. We thus obtain an oblong hexagon, having a door or window in the centre of four of its sides, the two shorter sides being occupied by a window and fireplace. Supposing the second corner not to be cut off from the square, it is evident that, by placing the doors quite at the angles, there would be sufficient room for a fireplace on either of those sides, and the apartment itself would be all the larger; but it is equally evident that, unless some other expedient were resorted to, the chimneypiece could not be so placed as to be adjusted symmetrically to the opposite wall; whereas, by bringing it out, as here proposed, the whole is reduced to the most exact order, and the room itself acquires a character as attractive as it is unusual. So far, too, from being in an obscure corner, the chimneypiece would be directly facing a window, and at no greater distance from it, than if the room were perfectly square, and the fireplace on the side opposite the windows.

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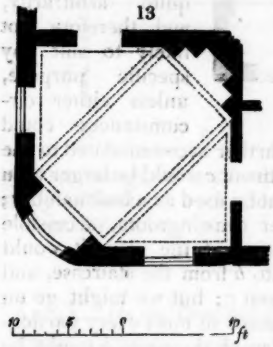
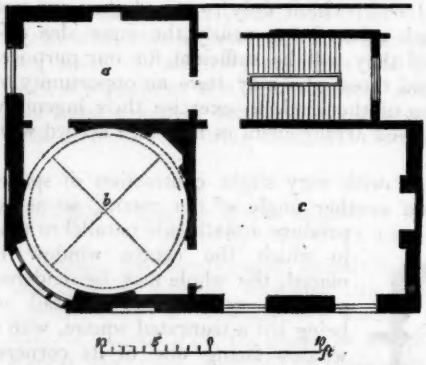


In *fig.* 14. the truncated square is converted into a circle in its general form, but extended by two triangular recesses, in which would be placed the doors communicating with the adjoining rooms. By this means the doors are removed to a farther distance from the fireplace, and, in fact, so situated as to be quite out of the way of any thing when opened. In this case there is only a single large window, which would afford ample light for a room of this form and dimensions (15 feet in diameter). The opening of the recesses should not be carried quite up to the cornice of the ceiling, as that would take off in appearance from the circularity of the room. The intersecting

14



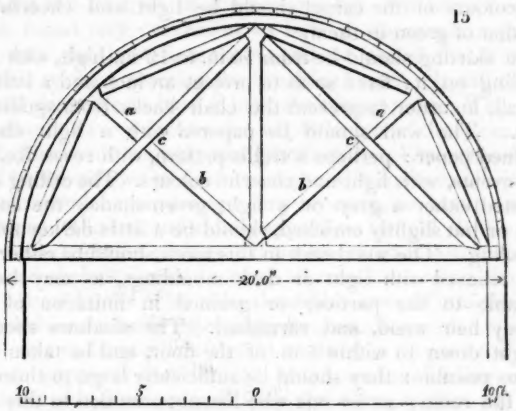
dotted lines are merely to show the direction of the symmetrising points, which is diagonal to the other rooms.

In this figure the whole of the first floor is shown, although, of course, quite arbitrarily, and, therefore, not likely to suit any specific purpose, unless either circumstances could be accommodated to that, or that be farther accommodated to the exigences of site and space. The apartment *c* would be larger than *b*, and *a* a small anteroom; or it might be used as a bedchamber; in which cases, *b* would be an inner drawingroom, accessible through *c*. By some farther variation of the plan, it would not be difficult to obtain a door into *b* from the staircase, and that, too, without disturbing the room *c*; but we might go on adding cut after cut, were we to attempt to meet every particular case by showing how the same plan of the room *b* might be adapted to it. These brief hints shall be here closed with the remark, that the above figures are two specimens from a rather extensive series of studies, or *schemata*, for forms of rooms; a much neglected, but assuredly not unfruitful, department of interior architecture.

London, Nov. 1834.

ART. IV. *An Original Design for a Centre.* By G. B. W.

THE accompanying design for a centre (*fig.* 15.) is, to the best of my knowledge, novel, and, although simple, it is one of great strength; for it is constructed on the principle which, as Nicholson says, is the strongest, viz., "the triangle;" and I think this will be found as strong as any which could be formed with the same quantity of timber. Centres of a much larger span, whether segments, semicircles, or semi-ellipses, might be formed on the same principle, by having two ring posts trussed together in lieu of the one in *fig.* 15. I have to observe to you, that the pieces lettered *a b* are not meant to be in one length, and halved at the point *c*, but two distinct pieces. I think it unnecessary to



give scantlings, or any farther particulars, as the plan may be so easily understood by inspection.

Sept. 19. 1834.

ART. V. *On the Dwelling-Rooms of a House.* By I. J. KENT, Esq.

THE breakfast parlour, dining-room, library, gentleman's room, storeroom, and sometimes the footman's room, are usually placed on the principal or entrance floor; and, in country houses designed in the cottage style, the drawingroom, music room, best bedroom, and dressing-room, are likewise often placed on the same floor.

The breakfast parlour is generally the smallest of the sitting-rooms. It should have the windows to face the south or south-east, the sun not having, at the early period of the day when this room is in use, acquired an unpleasant degree of power, and only possessing that genial warmth which excites cheerfulness and good humour. If in the country, the breakfast room should look into the flower-garden. Even in town, a few flowers seen from the window, or inside the window recess, tend to produce agreeable thoughts: and much good is done when we can begin the duties of the day with favourable impressions.

The floor of this room should be carpeted all over, and therefore need not be of an expensive kind; it only requiring to be, as, indeed, all floors ought to be, perfectly level. The boards should be quite flat, and the joints close; for, when the joints of the boards are open, the dust will work its way through the carpet and spoil it; and, when the edges of the boards are higher than the middle of the boards, the carpet will not last half the time.

The colours of the carpet should be light and cheerful, with a portion of green in them.

The skirting should be from 10 in. to 12 in. high, with a bold moulding on it; fixed so as to project an inch and a half from the wall, in order to prevent the chair backs from spoiling the paper. The wall should be papered with a light cheerful-patterned paper: perhaps a trellis pattern, with roses. &c.; but, at all events, with light and cheerful colours. The ceiling should be tinted either a grey or a light green shade; the cornices, plain, or but slightly enriched, should be a little darker tint than the ceiling. The woodwork in this room should be either green tints, relieved with light or dark mouldings, as may be most agreeable to the parties; or grained in imitation of green or grey hair wood, and varnished. The windows should be brought down to within 6 in. of the floor, and be taken up as high as possible: they should be sufficiently large to thoroughly light the room; as no one who has not attended to this would believe the difference an abundance of light makes in the cheerfulness of a room. There are various ways of enclosing the windows of sitting-rooms; but the best and handsomest is by shutters, folding back into boxes made to receive them during the day. They should never be made the whole height up to the soffit, as they generally are, but should either have the upper panel fixed, omitting the flaps, or there should be a capping fixed on the soffit, so that the shutter may be put to without any risk of rubbing and thereby spoiling the paint on the soffit. The shutters should be fastened back in the daytime by brass knob mortise latches: when this is done, it will prevent the shutters coming partly open, as they frequently do when not secured in their boxings by latches. They should be fastened at night by iron locking-bars, and not, as is most common, by latch bars. The sash fastenings should be strong, and capable of drawing the sashes closely and firmly together.

The doors should be as far from the fireplace as possible, but not close in the corner of the room; and they should be hung with rising hinges, in order that they may open clear of the carpet, and yet, when shut, be close to the floor. The locks should be mortised into the doors. In this room closets may be admitted with propriety; and they should never be less than from 14 in. to 18 in. deep. The doors and handles of the locks should correspond with the other doors of the room; and the space above the closets be enclosed up to the ceiling, in order that the cornice round the ceiling may be continued unbroken by any projection.

The chimneypiece should be low, not more than 2 ft. 9 in. high in the opening and may be of light-coloured British marble or vein marble plain in its design.

Where the mistress of the house is her own housekeeper, it will be found very convenient to have a storeroom communicating with the breakfast room, and so placed that it may be accessible without entering the breakfast room. It will likewise be found desirable to have it near the dining-room. This storeroom should have a dresser the whole length of the room: and, indeed, when wide enough, along both sides. Under the dresser should be abundance of drawers, some with locks and keys, and the space under the drawers may be open, or partly enclosed with doors. Closets, sufficiently capacious to hold all the china, glass, dessert service, pickles and preserves, should be provided, and broad shelves should be fixed all round the room above the door. Brass hooks of all sizes should be screwed into the edges of the shelves, to hang cups, jugs, &c., on.

One or two large filters should be fixed in or near the storeroom, to supply it with filtered water, and a feeding cistern should be placed on a level with the filter, so that the latter may be always full of water. The supply to the feeding cistern must be regulated by a ball cock. Great care should be taken to have the storeroom perfectly dry and inaccessible to frost. To make this room complete, there should be a double sink lined with lead; one half with a plug and wash-pipe, the other with a brass grating and wash-pipe, and having a drainer in it with holes for decanters and glasses. Both sinks should be supplied with hot and cold water, and there should be a small fireplace in the storeroom, to expel any damp that may by possibility have gained admittance. Where these conveniences are provided, all china, glass, &c., may be washed up and put away without being taken into the kitchen, and thus save much risk of breaking.

For storerooms and other places where it is thought desirable to cover the floor with oilcloth, I would advise old Brussels carpets to be sent, before they are quite worn out, to the oilcloth manufacturer, to be painted any pattern which may be preferred; by which eighteen pence per yard will be saved, as the painting of the carpet will be so much less than the price of new oilcloth, and it will be much warmer than the oilcloth painted on canvass, and much more durable, if it is kept until it is thoroughly dry and seasoned, before it is used. A small press for napkins and tablecloths is very useful in a storeroom. There should, if possible, be a veranda before the windows, to keep off the heat of the sun; and, where this is not practicable, a blind.

Manor Place, Paddington, Nov. 1834.

ART. VI. *On the Uses of Concrete applied as artificial Stone.* By G. L. SYMES, Esq.

I BELIEVE no one has brought this useful material to so great a degree of perfection as, and used it more generally than, Mr. William Ranger, formerly of Brighton, but now residing at Westminster.

Mr. Ranger conceived that concrete was not sufficiently understood to be duly appreciated; he therefore turned his attention to the matter, and, after considerable time expended in study and experimentalising, he, in 1832, took out a patent for preparing a kind of artificial stone. This artificial stone is formed in principle precisely the same as concrete, but with more care and cleanliness.

The first work executed in this new material was a wall surrounding the garden of Mr. Peel of Kemp Town. The ashlar stones (2 ft. long and 9½ in. by 8 in.) were formed on the spot, and became, in a few hours, sufficiently hard to commence setting. The mortar used in laying was formed of the same materials, and the whole became, as it were, one entire mass of concrete; having the precise appearance and the durability of Portland stone, though the proprietor did not incur above a third of the expense.

A beautiful edifice, called Belvedere Tower, was next commenced by Mr. Ranger. This building, built for the purpose of enclosing a steam-engine, is from a design from the pencil of Mr. Barry, and consists of an octagonal pedestal, upon which is placed another of a circular form, supporting eight three-quarter columns of the Corinthian order, with a very neat and elegant capital, cornice, &c. Over these are placed pilasters, or antæ, finishing with a raised-paneled dome; and a handsome finial, constituting the chimney, completes the structure. The whole of this tower, with the exception of the octagonal pedestal, is built with this valuable material, and reflects great credit both on the architect and the builder. The tower, which answers the double purpose of engine-house and observatory, is situate on a delightful prominence in Brighton Park, the property of Thomas Attree, Esq. Two gateways to this park have also been designed by Mr. Barry, and erected of this patent stone. The southern gate is one of the most beautiful of which the county can boast.

One of the most important works undertaken by Mr. Ranger is that of undersetting the storehouse in Chatham Dockyard. These foundations were laid in loose or boggy ground, by the old and dangerous method of laying pieces of timber, about 2 ft. 6 in. or 3 ft. square; next putting sleepers lengthwise, with the walls covered with planking, upon which the superstructure is commenced. The ultimate consequence of this imprudent

method, when resorted to in a situation where the timber is subject to being alternately wet and dry, is, that, in a few years, a settlement rapidly takes place, and divides the building into numberless parts. The bond of brickwork being broken, the edifice is in a perilous state, and, unless rectified, would probably fall to the ground.

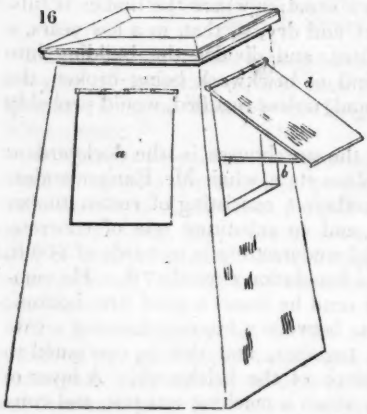
The northern division of the storehouses in the dockyard at Chatham was in a most perilous state, when Mr. Ranger undertook to remove the old foundation, consisting of rotten timber in a state resembling pap, and to substitute one of concrete. The building which required undersetting is upwards of 500 ft. long, and the breadth of the foundation exceeds 7 ft. He commenced by digging a trench until he found a good firm bottom; he then threw in the concrete between a framing, forming a case or box to keep the material together, and this he continued to do, till within a short distance of the brickwork. A layer of slate was then placed, upon which a machine was put, and concrete was then thrown in between this, and pressed up under the brick footing by four strong men. The instrument was made expressly for the purpose, of steel, and it answered the end excellently. The building now rests not on perishable matter, but on that which time, instead of injuring, will improve.

Brighton, 1834.

ART. VII. *Notice of a Chimney Pipe for preventing Smoke, in Use in the Neighbourhood of Barnsley, in Yorkshire.* By T. W.

I MUST say that I quite agree with you in your detestation of chimney pipes, though I have been driven to use them here, but I should wish to see them much simpler, more architectural, and not so like the china shop. In small rooms, the great cause of chimneys smoking is the want of a sufficient supply of air; for, if you set open the door or the window, there is a draught directly. The simplest remedy is to introduce a supply beneath or behind the fire: through the wall, if, unluckily, your chimney is in an outer wall; or by means of a pipe of copper or lead, under the floor, or behind the plinth, if it is in an inner wall. I have known pipes introduced into a chimney with good effect, in an inclined direction, just as it rises from the roof. But, after all, there are cases, I think, where a chimney pipe is the least evil; as, where a violent wind frequently overpowers a chimney. Here, to heighten the chimney (mind I speak of an old house) would frequently be a greater eyesore. I have lately put up one that was recommended to me, and has answered very well.

The appearance (*fig.* 16.) of this pipe, or pot, as it would be called about London, is more architectural than most others



which are made either of pottery or iron, and it surpasses all the chimney terminations that I have either heard of or seen, in preventing the wind from blowing the smoke down the flue into the room.

The general form of this pipe is that of a truncated pyramid. The four sides are cast separately, and bolted together; and each side is fitted up with a hinged door (*a*). The top is closed with an iron cap, which may be made architectural, and in harmony with the style of the house. There could not be a more suitable plan for disguising a chimney top; as a Gothic pinnacle, or, indeed, a pointed tower, turret, or pointed vertical termination of any kind, might be employed. Each door is connected with the opposite one by a rod of iron (*b*) about 2 in. longer than the diameter of the pipe, so that, in whatever direction the wind blows, it closes the door on the side against which it strikes, and opens the opposite one.

This arrangement is good in theory; and, having been tried for a number of years in this neighbourhood, every Barnsley man will tell you that it is also good in practice; which, after all, is the only safe test of "new improvements."

Banks, near Barnsley, April 12. 1834.

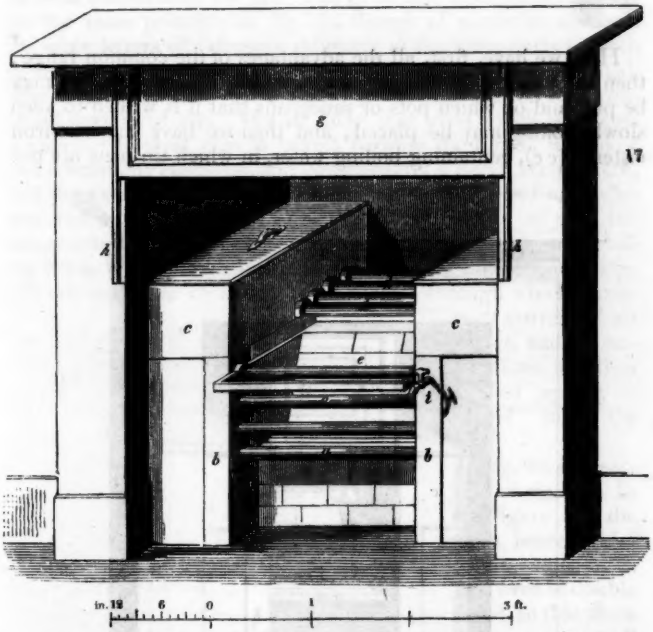
ART. VIII. *A Description of Mr. Weeks's Patent Cooking Apparatus, with illustrative Engravings.* By Mr. ROBERTSON.

MR. WEEKS's improvement in the cooking range consists in making the most of little means; or rather, in taking the greatest possible advantage of a given quantity of fuel, so as to obtain the greatest extent of heated surface from the means allowed. To attain this end, the front bars of the grate, the cheeks, the back, and the end pieces into which the back fits, are constructed of hollow tubes, the whole having at the same time the appearance of a common grate; and pipes from these communicate with two hot-water cisterns, one placed on each hob of the grate. There is also a communication between these cisterns, by pipes passing horizontally over the back of the fireplace, so that a continually circulating medium is obtained. Mr. Weeks has

also a smoke-board to his fireplace, for causing a greater draught in the flue when the fire becomes low.

There is an oven connected with the improved range, in which, from the manner of its construction, meat may be baked, and yet have all the advantage of meat that is roasted. Mr. Weeks has also invented a false bottom for grates, which is perhaps not less ingenious than his other improvements, though of less importance. The whole will be readily understood by reference to the engravings.

Fig. 17. is the "tradesman's kitchen range." The front bars (*a a*) which are hollow, communicate with hollow cheeks (*b b*);



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from the back of which pipes pass to the bottom of the cisterns (*c c*); and the communication between these cisterns is formed by the pipes (*d d*). The back of the grate, which is composed of hollow tubes, and is shown on a larger scale at *fig.* 18. *e*, fits into the hollow end pieces (*f*); each of which has also a pipe to communicate with the hot-water cisterns (*fig.* 17. *c c*). The inside of the cast-iron back of the grate, which the poker comes against in poking the fire, is nearly smooth, and the pipes are almost entirely on the outside, as may be seen by inspection of *fig.* 18. *e*.

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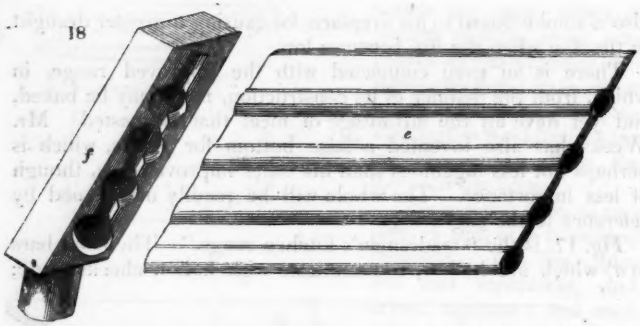

Here we have, first, all the advantages of the common range; then the pipes (*fig.* 17. *d d*), under which, if necessary, fire may be put, and on which pots or saucepans that it is wished to keep slowly boiling may be placed; and then we have the cast-iron cisterns (*c c*), containing boiling water, in which tin pans are put

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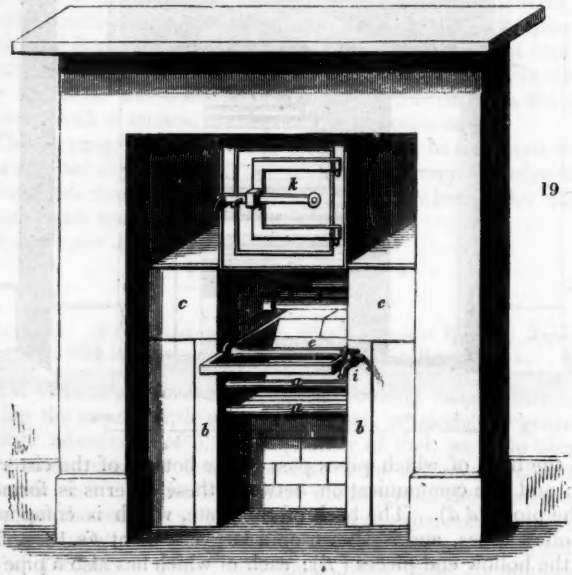

for boiling joints of meat, puddings, vegetables, or any thing else that may be required. There is also a constant supply of hot water for washing or other cleaning; and the hot water serves the farther purpose of heating the room in which it is

placed. The cock (*i*) for drawing the water off is fixed near the top, so that the pipes can never be wholly emptied.

The smoke-board may be of wood or of sheet iron. It slides up and down in the grooves on each side (*h h*); and, for the facility of moving, it is hung in the manner of a window, by ropes, and weights passing behind the chimney jambs. When the chimney smokes, or when the fire becomes low, the board is drawn down, and thus a greater draught is occasioned, which carries off the smoke, or kindles up the fire.

Fig. 19. is the "cottager's or poor man's cooking range." Here we have all the advantages of *fig.* 17., with the addition of an oven placed over the fire. The grate and cisterns, &c., being on the same principle as *fig.* 17., though of a smaller size, and the same letters of reference referring to the same parts in both figures, the description of these parts need not be repeated. The improvement in the oven (*k*) is the introduction of a continual current of air. We all know that meat which is roasted is superior to meat that is baked, because the former is cooked in a continually changing, and consequently a purer, atmosphere; and the exhalations from it pass up the chimney, and otherwise into the atmosphere; but meat that is confined in an oven becomes saturated with the impurities with which the air surrounding it has become contaminated. To obviate this evil, openings (*l l*) are made on each side of the oven, through which a constant current of air passes, and the exhalations are thus carried up by a funnel into the flue.

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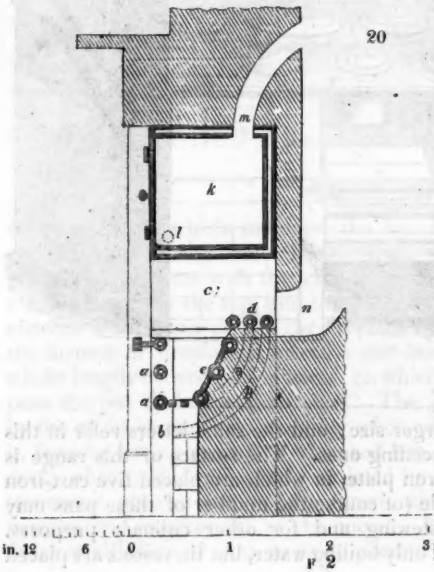

Fig. 20. is a section of *fig.* 19. In this figure also the same letters refer to the same parts. The oven is double cased, so that there is a vacuity all round, except at the doorway, for a current of hot air; *m* is the vent from the oven to the flue; *n*, the opening into the flue for the smoke; *o*, the pipe

from the bottom of the cistern to the bottom of the back of the grate; and *p*, the pipe from the bottom of the cistern to the back of the cheek. It will be observed that these pipes join the grate, at the lower part of the back, and the cheek, at a little below the level of the grate; because they come from the cold water supply, and, the cold water, by its gravity, forcing up the hot water, the water drawn off at *i* will always be found hot.

Fig. 21. is a kitchen range, or cooking apparatus, suitable for a gentleman's family. The grate, the hot-water cisterns, and the oven, are on the same principle as the smaller range, *fig.* 19.,

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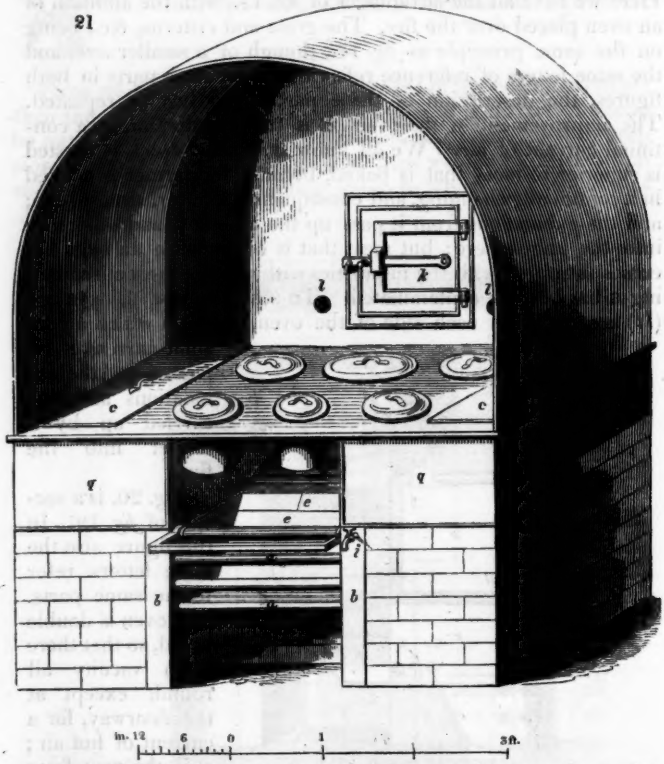
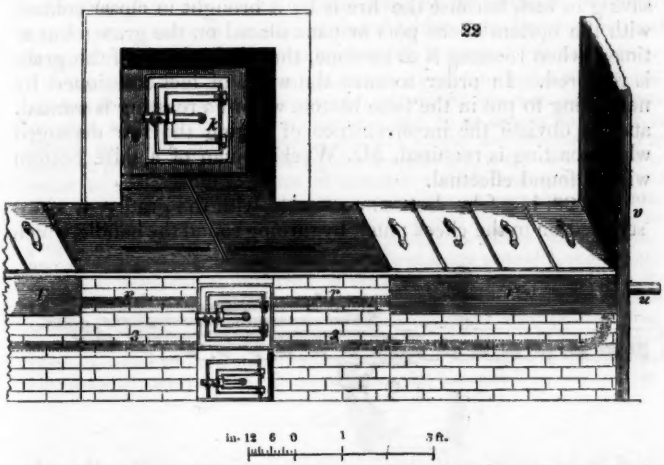


though of a much larger size; and the same letters refer in this figure as in the preceding ones. The surface of this range is covered with a cast-iron plate, in which are placed five cast-iron pans, and a fish-kettle (of course the number of these pans may be increased), for stewing and for other culinary purposes. These vessels contain only boiling water, but tin vessels are placed

in them, and in the cisterns, containing water, the articles to be cooked, either by stewing or boiling; the water, &c., in the inner vessels being made to boil by those vessels being surrounded by the boiling water in the outer vessels. This offers two advantages, namely, that the water in the tin vessels can never exceed the boiling point; and that these vessels with their contents may be easily and at once lifted out. In *fig.* 21. *q q* are two sheets of cast iron, which slide in grooves, and are pushed together to keep the fire and heat from any one engaged at the stewpans. Over this range is a canopy of tin or zinc, to prevent the steam ascending to the ceiling, at the top of which there is an opening for its escape into the flue.

Fig. 22. is a range suitable for a hotel, a club-house, or confectioners. The fireplace consists of a furnace formed of hollow

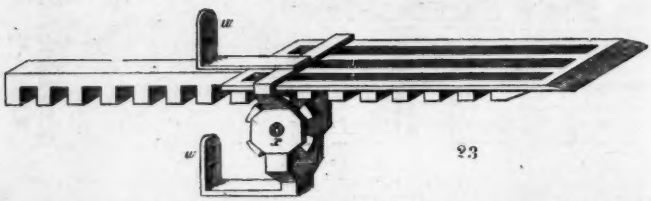


tubes or pipes, which surround the top, the bottom, the back, and the sides of the fire. These pipes, which form the fireplace, communicate with the cisterns on each side by the pipes *r r*, leading from the top, and the water returns again from the cisterns to the lower part of the fireplace by the pipes *s s*. Over the furnace or fireplace is placed a cast-iron plate extending the whole length between the cisterns, on which saucepans and stewpans are put to boil and to stew. The great evil occasioned by the metal immediately snapping when cold water is spilt upon it, from its having expanded when red hot, and contracting suddenly when cold, is effectually obviated by the longitudinal and transverse grooves seen in the figure, which allow for the expansion and contraction of the metal. In these grooves are fitted small fillets of iron, so as to prevent the smoke ascending

through them. Over the fireplace is an oven on the same principle as those already described. The cisterns (*t t*), on each side of the fireplace (the left-hand side is broken off, as it is merely a repetition of the right-hand side), have transverse frames, which slide along grooves in the sides, so that each cistern may be divided into three, four, or more parts, as occasion may require, and various-sized tins accordingly may be used. From the cisterns on one side there is a pipe (*u*), which passes through the wall (*v*): this pipe will carry boiling water to a very considerable distance; so that, by having another cistern beyond the wall (*v*), cooking may be performed by the mistress or housekeeper, in a different room from that where the fire is, and whence the boiling water is supplied.

It is well known that a false bottom to a grate causes a great saving in fuel, because the fire is by it brought in closer contact with the bottom of the pots or pans placed on the grate; but at times, when roasting is to be done, the whole depth of the grate is required. In order to save the waste of fuel occasioned by neglecting to put in the false bottom when no roasting is wanted, and to obviate the inconvenience of having the fire deranged when roasting is required, Mr. Weeks's plan of a false bottom will be found effectual.

Fig. 23. is a false bottom connected with the grate; *w w* are screwed on to the cheek; and, by turning round the handle, which



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is put on the axle (*x*) of the wheel, the false bottom, which has a thin edge, will make its way forward through the fire, and may be drawn back at pleasure. The thin edge, when pushed forward, rests in a groove in the other end of the grate.

The advantage and convenience of Mr. Weeks's cooking apparatus can only be appreciated by those who have seen it in use; and the great saving to the poor man in the "cottager's cooking apparatus," by having two boilers and an oven heated without any additional fuel, and at the same time all the usual advantages of his fireplace, only requires to be known to be generally adopted.

Bayswater, Jan. 10. 1835.

REVIEWS.

ART. I. *A History and Description of the late Houses of Parliament and ancient Palatial Edifices of Westminster, including a particular Account of those Buildings, with their official Appendages, from the Anglo-Saxon Dynasty to the final Arrangement of the National, Parliamentary, and Legal Courts, at the same Place.* By John Britton and Edward W. Brayley, Authors of numerous Antiquarian and Topographical Publications; Fellows of the Society of Antiquaries of London, and of several other Societies. No. I. 8vo, 32 pages, and 4 beautifully engraved steel plates. London, 1835. 2*s.*

THE respected names of the authors of this work are a sufficient guarantee for its excellence; and the price is so low that it must require a most extensive sale to remunerate them. In order to give our readers some idea of its contents, we shall make an extract from the authors' address to the public, and leave the work to that patronage which it cannot fail to receive.

"The design is to develope the genuine history of the *Palatial and Parliamentary Buildings of Westminster*, by a diligent enquiry into their origin, appropriation, and architectural characteristics, and by an earnest endeavour to furnish an insight into the relative states of courtly and national society at different periods. Towards effecting this desirable end, it will be necessary to resort to every available source of authentic record, both manuscript and printed, and to place before the reader such a distinct narrative of essential facts, as may at once to awaken his curiosity, inform his mind, and satisfy his judgment. In the first place, it will be expedient to adduce such evidence, and narrate such particulars, relating to Westminster generally, and its monastery in particular, as may tend to elucidate, or at least to indicate, its original and progressive occupancy as the national seat of royalty. For this purpose, we shall have occasion to lay before the reader many passages from ancient records and from the monastic chronicles, and these will be given with the most scrupulous attention to names, dates, and references, as the only specific mode of satisfying the critical antiquary and historian."

ART. II. *Elementary and Practical Instructions on the Art of building Cottages and Houses for the humbler Classes; an easy Method of constructing Earthen Walls, adapted to the Erection of Dwelling-Houses, Agricultural and other Buildings, surpassing those built of Timber in Comfort and Stability, and equalling those built of Brick, and at a considerable Saving. To which are added, Practical Treatises on the Manufacture of Bricks and Lime; on the Arts of digging Wells, and draining, rearing, and managing a Vegetable Garden, Management of Stock, &c.: for the Use of Emigrants, to the better Lodging of the Peasantry of Ireland, and to the Improvement of those Districts to which the Benevolence of Landed Proprietors is now directed.* By William Wilds, Surveyor, Hertford. 8vo, 143 pages, 6 lithographs and 27 woodcuts. London, 1835. 7*s.*

THE length of the title of this work precludes the necessity of our explaining what it is. In the preface the author informs

us that his "chief object is to promote the comforts and welfare of that class of his fellow-creatures who, through choice, or the force of circumstances, are led from their native country, and thrown into the solitary forest or the howling desert, in search of that reward for their industry and exertions which their own country no longer affords them." The author is a practical builder and surveyor; and he has not only passed the greater part of his life among bricks and mortar in this country, but he has been in America. He has given such plain directions for building earthen walls, that any labourer may carry them into execution; and when we consider the liability of log houses to be destroyed by fire, we feel assured that this work will be a most valuable one, both to the emigrant and to the settler in any newly colonised country, which is not sufficiently advanced to have houses of brick or stone. Directions are also given for building log houses, and also framed houses; the latter being an intermediate step between the log house and the brick house, at least in external appearance; though said by a Backwoodsman, in his *Sketches of Upper Canada*, to be "the most uncomfortable dwelling ever man lived in."

"There are different kinds of houses in Canada, about which a few words may be useful to the settler. Most of the houses, more particularly those of recent settlers, are built of logs. When a man gets on a little in the world, he builds a frame-house, weather-boarded outside, and lathed and plastered within; and, travelling along the road, you can form a pretty accurate estimate of the time a man has been settled by the house he inhabits; indeed, in some instances, you may read the whole history of his settlement in the buildings about his farm-yard.

"The original shanty, or log hovel, which sheltered the family when they first arrived on their wild lot, still remains, but has been degraded into a piggery; the more substantial log house, which held out the weather during the first years of their sojourn, has, with the increase of their wealth, become a chapel of ease to the stable or cowhouse; and the glaring and staring bright red brick house is brought forward close upon the road, that the frame dwelling, which at one time the proprietor looked upon as the very acmé of his ambition, may at once serve as a kitchen to, and be concealed by, its more aspiring and aristocratic successor; just like a man who, having acquired wealth from small beginnings, is anxious to conceal from the world the gradations by which he rose, and to exhibit only the result of his successful industry.

"If you can afford to build a brick or stone house at first, by all means do so; but if you cannot, take my advice, and, like a good fellow, don't build a frame one. It is the most uncomfortable dwelling ever man lived in."

Chap. III., *On the Manufacture and Choice of Bricks*, contains one of the best accounts of the London practice of brickmaking which we have anywhere seen, and which will be of great value in our provincial districts, as well as in new countries. The author does not appear to have seen Bakewell's work on brickmaking, or his pressing machine, noticed in Vol. I. p. 312.; for all that he says on the subject is, "there have been several patents taken out for moulding bricks by machinery, but we

suspect they have not answered the expectations of the projectors."

Chap. IV., *On the Properties, Uses, and Manufacture of Lime*, is equally valuable with that on bricks. We wish the author had seen the Closeburn limekilns; because, if he had, we think he would have recommended them in preference to all others. His observations on the subject of kilns, however, are valuable, and, like those on every other subject discussed in his work, altogether unprejudiced and dispassionate. Much has been said of the mortar of the Greeks and Romans, its durability, and the length of time taken to prepare it. Mr. Wilds is of opinion that the secret of its superiority lay in the compression given to it by beating it in basins. This is also the grand secret of the art of building in *pisé*. The more the moist earth is compressed by beating, the nearer do the walls formed of it approach those of brick or stone. The Roman theory, however, is entirely a mechanical one, and is by no means applicable to the lime mortars of the present day, however much it may be so to *pisé* or to mud mortars. Mr. Wilds justly observes,

"For making mortar, the lime should be used as soon as possible after being taken from the kiln, for if left long after exposed to the air, it will separate, first into small lumps, then into a fine powder, and in this state will make but a very inferior mortar, because it has already again absorbed as much carbonic acid as it can possibly contain, and, consequently, when made up into mortar, it has not the power to absorb any more; although it is as necessary to give strength to the mortar when drying, as it is injurious to the lime in its unslacked state, rendering it little better in effect than a composition of chalk or limestone, reduced to a powder from the crude state, would have in place of it.

"There is a difference of opinion among practical men as to the proportions of lime and sand to be used in making mortar; that of three measures of sand to one of lime being most approved, provided the ingredients be good and well beaten. Qualities, however, will differ in degree; therefore the best guide will be to use no more lime than will be sufficient to surround the particles of sand, and give the mass the necessary degree of plasticity, or, as workmen would say, make it hang together.

"Mortar in which sand predominates requires less water in preparing, and therefore *sets* sooner; it is harder, and less liable to crack in drying, for this reason, that lime mixed with water shrinks in drying, while sand retains its original magnitude.

"The best mortar for dry building is thus prepared:—Take well-burned lime fresh from the kiln, in which state it is called *quicklime*, strew any quantity at a time, say a bushel, on a stone floor, and pour water equally over the whole till it is saturated, or will absorb no more; turn it up in a heap with a shovel, when it will crack and snap, and steam will begin to issue from it; cover the heap over with clean sharp sand, say three bushels, taken from the bed of a running stream, or washed in clear water through a sieve, which will confine the steam and heat; proceed in like manner with the remainder, and then let it rest for a time. In this state it generates a powerful heat, which it keeps up long enough to cook a joint of meat by. This method of cooking is sometimes resorted to by workmen when the heap is large, in which case they enclose the meat in a tin box or a cloth, to keep it clean; and although the heat is not of an inflammable nature, it may be made to communicate fire to

wood or other light substances, through the agency of iron; thus a quantity of quicklime being slacked and turned up against a boarded fence or building, will set fire to the same through the agency of the nails, which will be rendered red hot, or nearly so, by the heat of the lime. During this time the decomposition of the lime is going on; when it is completed the heat begins to subside, and the lime is reduced to an impalpable powder, and is in this state called *slacked lime*. It is then turned over with a shovel so as to mix the lime and sand well together, and sifted or screened, the parts left behind being pieces of limestone which have passed through the kiln unburnt, or partially so, is called *lime core*, and should be thrown aside; but by some is thought too valuable, but is beaten to a powder and added to the mortar solely with a view to increase its bulk; the quality of it, where there is much of this core, being thereby proportionally deteriorated: clear water is then added, and the whole is thoroughly mixed by being repeatedly turned over and *chafed*, or drawn down with a shovel. If a superior mortar is required, it is afterwards beaten with a wooden beater upon the stone floor. When it is required for plastering, a quantity of hair from the hides of bullocks is stirred in and mixed with the mortar, by means of a double-pronged hook, like a hay-fork, with the tines or prongs turned downwards."

Speaking of cements, the author truly observes, that mortar made of good lime and clean sharp sand may be successfully employed for the same purposes as Roman cement, provided it be allowed sufficient time to dry before water is permitted to act upon it. This was mentioned many years ago, by Arthur Young, in his *Agricultural Survey of Lincolnshire*, and we have seen it proved in a variety of instances. In stuccoing the front of a house in or about London, for example, no builder need ever have recourse to any of the metallic cements, including, under this term, Roman cement, Parker's cement, Hamblin's mastic, and all other quick-setting cements (which are only quick-setting in consequence of their containing some metallic oxide), provided he can procure the best stone lime from Dorking or Aberthau. For our own parts, we should have more confidence in the durability of stucco, so formed, than in that of any of the cements.

Chap. v. treats of *Well-Digging*, *Draining*, &c., and includes a variety of useful information on the subject of cropping gardens; taken, with our approbation, from our *Manual of Cottage Gardening, Husbandry, and Architecture;* a work which we published at cost price (1*s.* 6*d.*) for the benefit of cottagers, and of which we have the satisfaction of knowing that upwards of three thousand have been sold.

The plates in Mr. Wilds's work are neatly engraved, and the designs plain and well arranged. Design VI. was contributed by Mr. Wilds to our *First Additional Supplement to the Encyclopædia of Agriculture*, where we have shown it (fig. 1197.) with the chimney top somewhat higher than in Mr. Wilds's design.

We should have recommended this work both to emigrants and architects, had it only contained the chapter on building in *pisé;* but finding, also, the two very excellent chapters on

bricks and on lime, we certainly have no hesitation in saying that it deserves to be in the library of every young architect and builder, and in that of every landed proprietor, in remote parts of the country, who possesses brick earth on his estate.

ART. III. *Hints for preventing Damage by Fire, in the Construction and Warming of Buildings.* By Alfred Beaumont, Architect, Surveyor to the County Fire Office. Pamphlet, 8vo, 67 pages. London, Weale, 1835.

THIS is a very interesting and important pamphlet; and we sincerely wish that any thing we could say in its favour would induce every architect, surveyor, and builder to peruse it; and, what would be more effective towards attaining the ends it has in view, every person who intended to purchase or take a lease of a house. Very few persons who occupy London houses are aware of the difference between a house that is in perpetual danger of being burned to the ground, and a house where that danger is greatly diminished. It has happened to us to have been several times the occupant of a house which has caught fire; and more than once we have narrowly escaped perishing in the flames. This has caused us to think much and deeply on the subject; and we are therefore the more impressed with its importance. We are also, as we conceive, the better able to judge of the merits of Mr. Beaumont's pamphlet; for, independently of our personal experience, there is not a work which has been published on the subject, either in the English or French languages, which we have not perused with attention. As a proof of this, we may refer to our *Encyclopædia of Cottage Architecture*, and more especially to the last chapters.

There is nothing which Mr. Beaumont has brought forward that we were not already well aware of; but he has placed the whole in such a clear, concise, and practical point of view, as cannot fail to make a strong impression on those who have not leisure, opportunity, and, perhaps, not inclination, to read larger works on the subject, and to reflect on what they read.

In former times, when building a house was an affair which seldom occurred to a man above once in his lifetime, endeavours were naturally made, both by the proprietor and the builder, to execute the work in what was considered the best manner, relatively to the ideas of the time; but, within the last fifty or sixty years, society in this country may be said to have been in a state of transition; and the man who builds a house at the age of thirty or forty, commonly requires one of a different and superior description by the time he has arrived at fifty or sixty. This soon led to the adoption of building houses as a distinct

trade or profession; and, consequently, to that extension of business commonly designated speculation. Within the last forty or fifty years, thousands of houses have been built in and about London, for no other purpose than to sell. This is all in the natural course of things: it is fitting that houses should be built and brought to market, as well as other goods; but it is consequent upon this state of things, that, unless the purchasers in the market are judges of the article they are in want of, they will be deceived by the seller. We shall not enlarge on this subject; the causes and the consequences have for some time been well known to the public. We shall proceed at once to our conclusion, which is, that, till the purchaser and renters of houses are better judges of what they ought to be, than they are at present, better houses will not be brought to market. That the public knowledge is improving in this respect is beyond a doubt; and Mr. Beaumont's pamphlet, if it obtains that circulation which it deserves, must infallibly contribute to its extension.

If we thought this pamphlet was not likely to be perused by all architects and surveyors, we should be tempted to give the essence of it; but we think too highly of the profession, not to give them credit for a desire to procure the work as soon as they know what it is. We shall, therefore, give little more than the contents of its different chapters.

" Chap. 1. The public buildings of the Romans afford the best examples of fire-proof construction, as well as of durability. Their domed temples and arched chambers still exist, although repeatedly subjected to fire. Peculiar excellence of their bricks and mortar. The arch and vaulted roof unknown to the Greeks and Egyptians. After the overthrow of the Roman empire, only wood and thatched buildings were raised, until the ninth century. The pillars, arches, and vaulted roofs called Saxon, a coarse imitation of the Roman. The walls and vaulting of Gothic buildings are very durable and secure from fire. Timber-framed buildings. Insecurity of modern brick buildings. Brick nogging, bond timber, and quarter partitions, a modification of the old timber-framed houses. Daily firings; from timber lying near and in flues; from bad brickwork; from discharging pieces in chimney breasts; from trimmers and plugs thrust into flues; from battened walls; from strong fires in common flues; from pockets and vacuities in brickwork; from combustible rubbish in setting grates; from flues run up, for hot plates, coppers, and hall-stoves, against contiguous timber; from iron smoke-pipes; from descending flues; from gas; from the carelessness of workmen.

" The public buildings of the old Romans still remaining offer the best specimen of fireproof construction, as well as of general durability, of which we have any knowledge. Although repeatedly fired, battered, and destroyed, as far as the efforts of barbarous enemies could effect their destruction, numerous portions of buildings, and some entire temples and mausoleums, still remain to attest the superior construction of the ancient over modern buildings. The portico to the baths of Agrippa, now the Pantheon, and the mausoleum of Hadrian, now the Castle of St. Angelo, are admirable instances of the strength and durability of their circular buildings with domed roofs; while the magnificent halls in the remains of the baths of Titus and Dioclesian, and the golden palace of Nero, are equally valuable specimens of oblong

buildings with arched roofs. The walls of these buildings have the strength and solidity of natural rock; most frequently they are composed of two facing walls of brick, a brick in thickness, leaving an interval between them, which is filled up with coarse grout-work: sometimes the facing walls are composed of small pieces of tuffa (a freestone): these walls have been occasionally faced again with fine marble. The walls of some of the principal buildings are composed of immense squared blocks of travertin (a porous marble of the country). The bricks are invariably sound and hard; their shape the large flat tile, the work with which is less liable to give way and bulge than with bricks of the modern shape. The mortar is perfect, and the joints completely filled: the grit of the mortar appears to be pounded tile, or tuffa, always sharp and clean; and the grout-work consists of broken tiles, and sometimes tuffa, embedded in mortar of the usual thickness, not flooded with a fluid mortar approaching to whitewash, as is now in use under the name of grout. That the mortar was not used in a fluid state, is visible in numerous fragments where small interstices are discernible, showing the shape of squeezed mortar. The peculiar strength of the Roman mortar is remarkable. In most cases, the Roman walls are constructed like the trunk of a tree, broadest at the root and diminishing upwards, and, as is well known, when they raised their walls with grout-work, they usually ran a double layer of their large tiles over their work at the height of every two or three feet.

"In consequence of the care thus bestowed on the solidity of their brick and grout work, it is one compact mass: and, when a fracture does take place, it is not a separation of entire bricks from crumbling mortar, as with us; their adhesion remains intact; but it is a splitting of the mass, as that of one entire rock: the marble incrustations or inlayings on their walls gave way to the effects of the immense fires which were lit within as well as without the buildings; their marble columns were scathed, and their surfaces, reduced to lime, were splintered off by the fires; but the brickwork has remained sound to this day. The accretion of ashes, of rubbish, and of decayed vegetable matter, during fourteen centuries of desolation, caused these buildings to be wholly or partially buried in a new soil. Even now, the plough passes over the roofs of several of their imperial halls, but, as the rubbish within them is excavated, their structure is found unimpaired; they are without fissure or fracture; and, in some of them, the fresco painting on their stuccoed interior is as fresh and unbroken as if it were but lately come out of the hands of the artist.

"The buildings of ancient Greece have not the fireproof merit of the Roman buildings, as the Greeks were unacquainted with the art of raising vaulted roofs, or even common arches. The stone or marble roofs of their principal buildings were supported by massive timber framing, which was frequently destroyed by fire; their walls, however, constructed of solid masonry, and of exquisite workmanship, remained; and the buildings became restored to use upon the putting on of new roofs. These roofs are now wholly gone; but the magnificent columns and the admirable masonry of the walls of their temples have in great part withstood the battering artillery of successive conquerors, which, more than fire or time, has caused the dilapidations we so much deplore."

"Chap. II. Remedies proposed. Prohibition of timber in party walls, or, at least, within fourteen inches of a flue. An improved brickwork, hard bricks, and strong mortar, only. No puckets or vacant chinks to be suffered in party walls. Corbels and iron ties to be used for the support of timber near flues. Stuccoing instead of battening and lathing the walls. Stone stairs. Precautions for furnace chimneys. For iron smoke-pipes. Against accidents from gas. Against carelessness in workmen."

This is a most important chapter; and it is one which every occupier of a house ought to read, and to remember. We wish Mr. Beaumont had quoted the case referred to in our article

(Vol. I. p. 40.) "On rendering lath and plaster partitions fireproof." We happen to know the private history of that case, which it is dreadful to contemplate.

"Chap. III. Methods of constructing buildings fireproof. Party walls a valuable protection from lateral risks. Incombustible ceilings an equal protection between floor and floor. Common brick vaultings effectual. Brick arches, in series, sprung from iron beams. The method of construction described. York landings in iron bearers. Iron doors. Iron roofs. The fireproof principle may be adopted, with economy, in various hazardous trades and depositories of valuable property. May be partially adopted, with good effect, in all extensive buildings. Might have limited the destruction of the Houses of Parliament to a small extent, had it been provided. Different modes of fireproof combined at the County Fire Office."

The County Fire Office, designed by, and executed under the direction of, Mr. Abraham, and one of the most dignified edifices in Regent Street, is adduced as an example of fireproof construction; as it may also be, of excellent interior arrangement, Mr. Abraham having been assisted in devising the plan by the founder and managing director of the Institution, Mr. Barber Beaumont.

"Chap. IV. The means used for heating buildings frequently set them on fire. Great waste of fuel in open fireplaces. The Roman method of heating the best. Vitruvius on heating. Description of the caldaria at Pompeii. Swedish and German stoves. French stoves. Braziers in Italy and Spain. Heating by hot air. By steam. By hot water. Mr. Perkins's patent hot-water apparatus. Trials of different methods at the County Fire Office. Satisfactory result. A method described by which the required degree of warmth is obtained, free from impurity, dirt, or dust, with a twelfth part of the fuel usually consumed. Important discovery for the heating of all churches, chapels, hospitals, gaols, and other large buildings, as well as private dwellings."

"In looking over the baths of Pompeii, for example, we find that the caldarium, a hot air chamber, was heated in the following manner: — the whole of the floor, consisting of stone flags, three or four inches thick, is raised upon brick piers, nine inches square and about nineteen inches high, leaving a vacancy of that depth beneath the floor; the surface of the floor is stuccoed over to the thickness of about an inch; round the walls of the room there is a casing of tiles set on edge, and securely fixed with iron ties to the wall, but so as to leave an interval of a few inches between them and the wall, and these tiles are also stuccoed over; then the flues from two boilers, which have been placed on the outside of this apartment, open beneath the floor, and the draught of heat, diffusing itself there, ascends between the wall and casing on the opposite side, and finds an exit at the top. This principle of heating the hot room of their baths, under various modifications, appears to have been universal among the Romans, and nothing could be better adapted for the purpose. The bathers being accustomed to walk, sit, and converse, naked and barefoot, in these rooms, it was necessary that the heat should rise through the body of the floor itself, — and this it did copiously and with purity; and as this draught of heat was only a continuance of the furnace and flue, after they had done their work in heating the boilers, it was an economical application of the surplus heat, which, had there been only a common chimney to the furnace, would have passed off in waste.

"A detailed account of the construction of these Roman hot-houses is given in the works of Vitruvius. These heated rooms, on a smaller scale, appear to have been provided in every Roman villa, and they have been discovered in England, wherever the remains of Roman habitations have been found."

We have examined the bath at Pompeii alluded to, and it is singular that it corresponds with the mode of heating the floors of houses practised in China, as described by Du Halde and others. From reflecting on the principle of both modes, the idea occurred to us of heating the floors of cottages, detailed in our *Encyclopædia*, which is literally the same as that recommended by Mr. Beaumont, and which, whenever fuel becomes scarce, will be adopted in every description of human dwelling. It is only by such a mode of heating the floor by flues, that every man may grow his own fuel on less than an acre of ground. See a *Manual of Cottage Husbandry, Gardening, and Architecture*, &c.; 8vo, London, 1830, 2*s*.

In describing the hot-water apparatus of Mr. Perkins (p. 50.), there is a mistake which ought to be corrected in a second edition. It is said that the safety of the pipes depends on their being "entirely filled with water. If a little of the water were to escape, the pipes would burst." Now the horizontal pipes are entirely filled with water; but there is a vertical expansion tube which is empty, and into this the water expanded by the fire into high-pressure steam is allowed to rise, otherwise the pipes would infallibly burst. The mode of heating by Chabannes, noticed p. 48. and p. 49., is not described with sufficient clearness. The immense danger of having a close boiler, communicating with a supply cistern at the top of the house, ought to have been pointed out.

"In all modern applications of heat there are two great defects. The first is most obvious in the heating of churches, chapels, and all large chambers having stone floors. However large the fires may be, and the volume of heat they deliver, there will always be an ingress of cold air (in cold weather), and this will form a stratum over the pavement of the building. The strongest heat will rise to the highest space above; the air which is the least warmed will remain in the lower portion of the building; and the *last cold air that steals in will rush along the pavement, and always keep that part cold.* Hence, although a man feel warmth to his face, his feet will suffer from the coldness of the pavement. In short, that part of his body will be dangerously chilled where warmth is most important. The second defect is, *the great waste of fuel in proportion to the heat gained;* at the least eleven parts in twelve of the heat generated passing, in waste, up the chimney.

"A history of the warming of the County Fire Office will illustrate these facts in a striking manner. About fifteen years since, Mr. Silvester's hot-air apparatus, which has been already briefly described, was introduced into the building. After a short time, owing to defects in the cockle, flame mixed with the hot air, and set fire to a quantity of shavings and chips, left by the carpenters in the hot-air chamber above the cockle, which, extending through the flues, would have fired the house, had it not been constructed fireproof. Subsequently, so much smoke mixed with the hot air, through chinks in the joints of the cockle, that, after two years' endurance and tinkering, this apparatus was removed. Another inventor then had leave to try his steam apparatus; but, after a similar probation, the inconvenience occasioned from defects in the work, and from the condensation of the surplus steam in the flue, and the great consumption of coal, determined the directors to have that also removed. The hot-air stove and the steam apparatus each raised the

required degree of warmth in the office, but subject to many annoyances, and a great consumption of fuel. A mode of heating was then contrived, which has been followed by the most complete success, and which is invaluable for warming all buildings having incombustible floors.

"It was remarked that, under the hot-air and steam-heating systems, although the air in the office was sometimes too hot, still the clerks always complained of cold feet. They had mats given them to stand on, and they frequently left their desks to get a warm at the hot-air vents or the steam-case; but still their feet were cold. It was considered that this could only be overcome by causing the heat to arise through the paved floor itself. The mode of heating the caldaria of the Roman baths proved the practicability of that mode of heating. This was farther corroborated by the evident warmth of the pavement in the streets over bakers' ovens. A flue was accordingly constructed under the paving of the office, the paving-stones themselves forming the roof of it. The area of the flue is a foot square: it begins on one side of the office, travels under the pavement along that side, across the top and down the other side, where it enters an upright flue in the party wall. The course it takes is shown in the dotted line in the plan, in page 39. In this course, it passes under the feet of the clerks, which it keeps comfortably warm; the heat being filtered, as it were, through stone, and being uncontaminated by heated metal, it arises in the utmost purity. There is no longer a difficulty in keeping up the heat to a required pitch; the warmth is so considerable from a mere handful of fire, that the difficulty has been to keep it low enough without putting the fire out. The fire office and principal staircase are kept comfortably warm, during the winter, at an expense of less than 30*s.* a year, or about 3*d.* a day for the cold season. A similar degree of heat from the hot air, and afterwards from the steam apparatus, cost us 18*l.* annually. This new mode, giving an equal degree of heat, requires only a twelfth part of the fuel consumed by the common furnaces. Persons coming in from the open air have complained of our keeping such large fires. When they have been shown that the only fire we had, was a little fire which was burning without fierceness, and might be contained in the crown of a hat, they have denied their belief of the fact, and insisted that the warmth which they felt must have been procured from some other supply. It really does appear like magic; but the case proves this important fact to a demonstration, viz., that only one part in twelve of the heat evolved from the fuel consumed with the hot air apparatus, and afterwards with the steam-boiler, went to the heating of the place intended; while the great remainder, the eleven parts of the twelve, went with the draught up the chimney, and was wasted above the house-top.

"As this method of heating buildings is equally excelling in the purity of the heated air; in the beneficial way in which it is delivered (through the floor); in safety from fire; in preservation from smoke, dust, and dirt; and in economy of fuel; it cannot fail to be generally used wherever it can be applied.

"This method of heating will not, however, as our houses are now built, admit of general application. It can only be used where the floor and the ceiling beneath are of incombustible materials. For all churches, chapels, hospitals, workhouses, gaols, and other buildings where there are vaulted basements and stone floors, this mode is invaluable. It is, indeed, the only principle on which places with stone floors can be properly warmed. In all private dwellings where there is a vaulted ceiling under the hall, these flues may be introduced beneath the paving with the best effect.

"If it be desired to make a house comfortably warm, the only way is to have a body of heat issuing from the pavement of the hall; from that all the passages and stairs above will be readily supplied; and, when a room door opens, instead of having to shrink from a cutting rush of cold air, there will be a new accession of warmed air. Every one must be sensible of the severe colds which are caught by persons who, while heated by a large fire or crowded room, have a cold draught of air thrown upon them from the opening of the

door; or who have to leave a hot room, and walk up or down a staircase, where the air is as cold as in the streets, and more piercing from the draught."

Mr. Beaumont has described a stove, in use in the County Fire Office, for heating the flues under the pavement, which appears a very good one. Its management, he says, is "neither difficult nor troublesome in the hands of any intelligent servant." (p. 55.) The difficulty of getting this intelligent servant is, however, the great impediment to the introduction of improvements; and it can never be done away with, in this or in any country, till a system of superior school education becomes general. From what we have seen of Witty's smoke-consuming furnace in the case of hot-house fires, we are convinced it would require less nicety of management than the one adopted at the County Fire Office; and we feel confident also that it would more effectually burn the smoke. We are surprised that Mr. Beaumont has made no mention of this invention, which has been for some years applied to different breweries, distilleries, and manufactories about London, Birmingham, Manchester, &c., and found to produce a great saving of fuel, as well as almost entirely to consume the smoke.

An Addenda contains Notices circulated extensively by the County Fire Office respecting "Accidents from the firing of women's and children's clothing;" and directions how "to escape from the upper chambers of a house on fire."

We conclude by expressing our ardent desire that this work may be read and digested by all architects, surveyors, and builders; and by all heads of families. For this purpose, we could wish that its contents were copied into the newspapers, magazines, and penny publications of the day. This, we feel confident, would be gratifying to Mr. Beaumont, in proportion as it tends to promote the enlightened and patriotic objects he has in view.

ART. IV. *Entwurfe von Schinkel.* 22s Heft.

THIS new number of Schinkel's designs contains plans, elevations, and sections of St. Nicholas's Church at Potsdam; and of four other churches at Berlin. The latter are by no means favourable specimens of the architect's style: they exhibit certain of his least pleasing peculiarities, with very little of his wonted excellence. This, however, will excite less surprise, when it is understood that, after being commissioned to prepare designs for two larger churches, he was unexpectedly directed to cut them down very much, and to make designs for two others, with all possible expedition; being at the same time compelled not to exceed the sum intended for the two buildings only. The church

of St. Nicholas has likewise been greatly altered from the original project for it (which is the one here shown). At first it was to have been crowned by a dome of exceedingly lofty proportions, placed on a double tambour, the lower one of which would have been surrounded by a grand peristyle of twenty-eight Corinthian columns, and the extreme height externally would have been 200 ft., the interior diameter about 60 ft. Although these dimensions are not very extraordinary, yet this cupola would have appeared of unusual magnitude, owing to its size compared with the church itself. The latter, which has been completed according to the original intention, is in its general external form a perfectly square structure of 115 ft. by 83 ft. in height to the top of the cornice; with the addition of a hemicycle (56 ft diam.) on the east side, forming the altar recess, and a portico on the opposite or entrance side. Internally spaces are taken out at the angles for staircases, &c.; by which means the plan is made to partake in some degree of that of a Greek cross. The portico, which is Corinthian and hexastyle, with fluted columns, is 66 ft. wide, and projects 24 ft. in advance of the building behind it. In size, there is hardly any difference between this portico and that of St. Martin's Church, and the three doors are similarly placed in both; but here all resemblance between them terminates. In the one at Potsdam there are no windows, and the central doorway is exceedingly lofty, its cornice coming just below the soffit of the architrave. Fine as the architectural character of this portico is, this feature of the building can be considered as only secondary to the mass behind it, which appears colossal in comparison; and when this latter shall be crowned, as is now about to be done, with a larger pediment filled up with sculpture like the one below it, it can hardly fail to produce a very powerful effect of grandeur. An elevation of the church in that state will probably be given in a future number, and also some plates of the details: of these many appear to be rather singular, but it would be hazardous to express an opinion of them, until we behold them represented on a larger scale than they are here shown.

ART. V. *Catalogue of Works on Architecture, Building, and Furnishing, and on the Arts more immediately connected therewith, recently published.*

BILLINGTON's Architectural Director, &c.; Part IX.

This ninth part, which we have duly received, contains about the same quantity of matter, and the same number of plates, as the others. The Treatise extends to p. 336., and the Dictionary, or Glossary, to the word "Timber" in p. 96.

Laxton's Improved Builder's Price-Book, &c. 8vo, ninth edit., 158 pages. London, 1835.

In this new edition, considerable alterations and additions have been made in the bricklayer's, carpenter's, and plasterer's work, and several corrections in most of the other trades; also an extract from the Chimney Sweepers' Act, which is most important to builders. "If there be any doubt upon the equity of the prices contained in this work, the author will be ready to enter into any calculation or explanation to prove the correctness of them; or will introduce tradesmen of known integrity, and of the utmost respectability, to undertake the execution of any part of the works at the prices stated. The author is constantly receiving numerous applications from the country for advice or instructions as to particular modes of valuing or measuring works connected with buildings, or valuing of property, which considerably intrudes on his time; in future, a charge of a guinea will be made for an answer to any such communication." (*Preface.*)

A correspondent informs us, that this work contains "a fourth more prices than any other work, numerous tables and memorandums, an extract from the Chimney Sweepers' Act [which we shall give in an early Number], and two useful tables, like those compiled by Mr. Inwood from Baily, Smart, and similar works, on valuing estates and annuities."

Hartley, David, Esq., formerly M.P. for Hull: An Account of the Invention and Use of Fire Plates, for the Security of Buildings and Ships against Fire. Pamphlet, 8vo. London. 1*s*.

We have not seen this pamphlet; but, from the title, we conclude it is the same as that mentioned in our *Encyclopædia of Architecture*, referred to when treating of fireproof buildings, § 2189.

Barlow, Peter, Esq., F.R.S., Corr. Memb. Inst. France, &c. &c.: Report on the Present State of our Knowledge respecting the Strength of Materials. [From the Report of the British Association for the Advancement of Science, for 1833.] Pamphlet, 8vo, 11 pages. London, 1833.

From this pamphlet "it appears," as a correspondent has observed, "that no correct experiments have yet been made on timber, and other materials, when employed with the force of compression applied parallel to the length of the fibres, when the beam is of great length in comparison to its section; as in story posts, &c. Perhaps, by your noticing this curious fact in your journal, it might induce some one to make a series of experiments, as it appears strange that we should have been building so long, in large towns, shops and stacks of warehouses

wholly supported by story posts, &c., without any means of knowing whether they would be of sufficient strength to carry the enormous weight supported by them or not." — *W. J. S. London, Dec.* 1834.

A Compilation of splendid Ornamental Designs from foreign Works of recent Production, adapted for the Study of Drawing; to assist the Artist and Decorator; and to aid in the various Manufactures where superior Ornament is required. Folio. Parts VII. and VIII. London, 1834. 1*s.* each.

We have noticed the preceding numbers of this work in I. 137. and 371.; and, now that it is completed, we cannot do better than give the following extract from the preface: —

"The collection consists of designs which were originally intended for particular purposes, and mostly have been executed upon the Continent. It exemplifies the admired style of Percier and Fontaine, or what may be termed the modern French style; and contains various examples of painted panels, carpet patterns, transparencies, embroidered chair covers, enriched entablatures, ornamental table-tops, carved-work borders, &c. Although, in many instances, these may be inapplicable for precisely the same purposes as those for which they were at first intended, yet they will be found eminently serviceable for selection and adaptation; this being the chief object of the work: and, with the consideration that they would generally be applied to other uses, it was thought unnecessary to state for what they were designed originally, or to give letterpress descriptions of each; especially as it might rather tend to confuse the ideas when making selections and arranging new combinations.

"The style exemplified in this work is, perhaps, above all others, most suited to embellish British works of art; it combines grandeur with delicacy in detail, which fits it equally for large designs and for small and most fanciful objects. Its foundation is that of the Grecian, and will therefore be less at variance with the general style of building: hence it is peculiarly adapted to the present age, and to meet the increasing demand for articles of superior ornament. By its chaste and classical combinations, it is also greatly calculated to keep pace with modern improvement, the great progress of refinement, and the rapid advancement of taste.

ART. VI. *Literary Notices.*

CARTER's Ancient Architecture has just been reprinted in a 4to size, containing the same number of plates as the old edition. Price 4*l.*; or, with the letterpress, 8*l.*

Crosses of England. — Mr. Owen B. Carter is engaged on a

Series of Views illustrative of the Crosses of England. Winchester and Chester are now ready, very finely drawn on stone, by Haghe. Price 4*s.* each.

The Organ Screen of York Cathedral. — Mr. F. H. Abrahams has engaged with Mr. Henry Shaw to engrave the splendid Organ Screen in York Minster, from an original drawing by Mr. Abrahams. It will be engraved in the first style of art. The subscription book already contains 250 subscribers; and it is now open for the insertion of names, at Williams's Library of the Fine Arts, Charles Street, Soho.

MISCELLANEOUS INTELLIGENCE.

Art. I. *General Notices.*

All Architecture is symbolical, but none so much so as the Christian architecture of the middle ages. The first and greatest of its objects is to express the elevation of holy thoughts, the loftiness of meditation set free from earth, and proceeding unfettered to the heavens. It is this which stamps itself at once on the spirit of the beholder, however little he may himself be capable of analysing his feelings, when he gazes on these far-stretching columns and airy domes. But this is not all: every part of the structure is as symbolical as the whole, and of this we can perceive many traces in all the writings of the times. The altar is directed toward the rising sun, and the three great entrances are meant to express the conflux of worshippers from all the regions of the earth. Three towers express the Christian mystery of a triune Godhead. The pulpit rises like a temple within a temple, with redoubled grandeur. The shape of the cross is common to all the Christian churches, even of the earlier times. The round arch was adopted in the earlier Christian architecture, but laid aside on account of the superior gracefulness supposed to result from the crossing of four arches. The rose, a mystical emblem, is an essential part of all the ornament of this architecture; even the shape of the windows, doors, and towers, may be traced to it, as well as all the accompanying decoration of flowers and leaves. When we view the whole structure from the crypt to the pulpit, it is impossible to resist the idea of earthly death leading only to the fulness, the freedom, and the solemn glories of eternity. (*F. Schlegel, on the History of Literature*, i. 339.)

Stenciling, instead of Penmanship, for the writing on Plans. — Allow me to recommend to the notice of your readers an application of the art of stenciling which will save a great deal of time in architects' offices, and be particularly useful to the younger members of the profession. Stencil plates may be made containing the words mostly used by architects and surveyors on their drawings, &c., such as plan, one-pair story, two-pair story, &c., of any size, and of several varieties of printing or writing; and the principle may be extended to borders for plans, points of the compass, heraldic crests, &c. The method of using the plates is to lay them flat on the paper, and, with a brush made for the purpose, to scrub the ink into the vacancies forming the letters. The process is extremely simple, and may be very easily learnt.

The credit of the application is due, I believe, to Mr. Harris of High Street, Birmingham; and although similar plates are now made by many different persons, I am informed that his plates are much superior to the others. They are not expensive; and, with fair usage, will last for years.

I send you some specimens for inspection, done by myself after very little

practice; and I think you will readily admit that they are neat enough for any plan or drawing. — *Pit. Dec.* 17. 1834.

The specimens sent are neat enough for ordinary purposes; and, not being exactly the same as written letters, they have a character of art about them which appears suitable for explaining works of art. This character of art arises from several of the letters, such as A, B, D, O, P, Q, &c. being necessarily divided into two parts; the letters, as our readers are no doubt aware, being cut out of thin brass plates. — *Cond.*

A movable Kitchen. — Sir Samuel Morland, who lived in Vauxhall House in 1765, being a great mechanic, displayed his skill in every part of the house. The side table in the dining-room was supplied with a large fountain, and the glasses stood under little streams of water. His coach had a movable kitchen, with clock-work machinery, by means of which he could make soup, broil steaks, or roast a joint of meat while travelling. When on a journey he was always his own cook. (*North's Life of the Lord Keeper Guilford*, p. 294.)

Art. II. *Foreign Notices.*

FRANCE.

Paris. La Madeleine. — After a succession of interruptions and changes, the works have for some time past been carried on so vigorously that this noble edifice is now very nearly completed. Externally, very little, if any thing, remains to be done to it, and so far, therefore, its effect is fully visible. The front presents an octostyle portico with fluted Corinthian columns 60 ft. high, and there are similar colonnades along the sides, the entire number of columns amounting to fifty-two. This continuity of columniation produces a character no less solemn than rich, and which is greatly assisted by the omission of windows, the interior being lighted through the flat domes in the roof. Amplitude of forms, as well as extent, contribute to render this building one of the most classical pieces of architecture Paris can boast of. Even the Bourse, which, it must be confessed, has been greatly overpraised, looks very undignified, almost trivial, in comparison with it. — *W. H.*

Paris, Oct. 1834. — The more enterprising capitalists here are engaged in considering the best mode of executing a work, which seems to promise an immense return for the sums to be expended on it. This is a railroad from Paris to London, by which, with the exception of the time lost in crossing the water, one might go from London to Paris in little more than 12 hours. Of course the influx of visiters to Paris would be immense, and immense also would be the gains of the capitalists. The only difficulty is to know which route to take. Some propose the Dieppe road; and it is true that the distances between Brighton and London and between Dieppe and Paris are much less than those between London and Dover, and Paris and Calais; but then, *quel trajet par mer!* The horrible sea voyage between Brighton and Dieppe would be sufficient to deter any one from venturing; and the capitalists are generously willing to expend a little more money at first, to insure a greater and more certain return. The road through Amiens, Abbeville, and Boulogne is therefore likely to be preferred. By this route there will be above eighty miles of level road, not requiring any tunnel, or viaduct, or embankments; without, indeed, even a single hillock; and the proprietors of the land over which the railroad will pass are so anxious to obtain the preference, that the greater part of them have, unlike your short-sighted men of wealth, actually offered their land for nothing.

It is true, that, if the railroad be continued to Calais, there must be a tunnel at Colembert: but this is a trifling obstacle, compared with the immense advantage of a short, easy, and, it may be said, certain passage across the

straits, as it is well known that a packet boat leaving Dover is quite sure of getting either to Calais or Boulogne in the same tide, the wind being always favourable for one port or the other; and this route, by embracing both ports, would render the passage certain of being effected within the given time. The other passage (by Dieppe) is far more uncertain, it being impossible to calculate, with any degree of certainty, on the length of time which will be required to cross between Dieppe and Brighton. According to the best calculations, the journey from Paris to London through Boulogne may be accomplished in 14 hours, allowing three hours for crossing the water and one for stoppages; and through Calais in 15 hours, allowing two hours for crossing the water and one for stoppages. By Dieppe the journey could not be accomplished under 17 hours; 8 hours being the least that can fairly be calculated on, for the voyage.

Another route has been proposed through Calais, Lille, and St. Quentin: but this would require two tunnels near St. Quentin; and, there being only one port open, the sea voyage could not be calculated with so much exactness. By this route it would take about 17 hours for the whole journey. The expense is estimated at about 7000*l.* per mile. — *F. S. Besson. Rue de Richelieu.*

Two Statues have just been elevated to the top of the triumphal arch in the Place du Carrousel, to complete the group of the triumphal chariot. They appear to be checking the speed of the horses, and are said to be the same statues that formerly accompanied the celebrated Venetian horses on that monument. (*Galignani's Messenger.*)

The twelve Statues of the Pont de la Concorde, which at present overwhelm the Chamber of Deputies, will be placed in the grand avenue of the Champs Elysées, between the Tuilleries and the Rond Point. The fosses of the place are to be filled up and covered with grass plots, on which porticoes will be erected, the elevation of which will not impede the prospect of this vast esplanade. (*Ibid.*)

The Monument erected to the Memory of the Duke of Berri, in the Rue de Richelieu, is now in progress of demolition. The marble on the premises is valued at 500,000 francs. (*Paris paper.*)

SWITZERLAND.

Suspension Bridge over the Saone, at Freyburg in Switzerland. — This bridge, which is to be one of the largest of the kind on the Continent, is to be 903 feet in length. The chains to it are already put up. (*Journal des Travaux Publics.*)

The Town of Geneva, stationary as it has been in its architecture for ages, is beginning to exhibit signs of improvement. Those unwieldy though picturesque projections, which darken the streets and prevent the free circulation of air, are forbidden to be renewed when a house is to be rebuilt. A new mode of paving the streets has been adopted, by which smaller stones are used, and a flatter surface produced, and one safer for horses. The sewerage is being improved, and gas has been used for some time, as it has in the town from which I write. — *J. W. D. Lausanne, Nov.* 26. 1834.

PORTUGAL.

Lisbon, Dec. 21. 1834. — There is little new in the way of architecture here, but several things very interesting with reference to the buildings of past times. The aqueduct of Lisbon is one of the finest monuments of antiquity, and one wonders to see it in such a country as this. This aqueduct is continued from the Riberia de Paranque, for a space of 10¼ miles, to Lisbon. It is carried on arches over the valleys, and by subterranean passages through the hills. Across the valley of Alcantara, 1¼ mile from Lisbon, it is supported by 35 arches; and, as these are the most magnificent of any on the whole route, I shall give a short account of them. The whole number of arches is 127.

The set of arches across the valley of Alcantara extends 821 yards; the

height of the principal arch is somewhat more than 75 yards, and its breadth or width 36 yards. The water flows in two channels, each 12 inches wide and 12 inches deep, the bottom of which is rounded; but the depth of water in these channels is only about 7 inches. Between these channels is a walk or footpath, paved with fine stone: the whole is arched over, the covering arch being 13 ft. high. The duct is lighted and ventilated by means of turrets or square towers, with latticed windows, and occasional doors to admit workmen when any repairs are wanted. There are 16 of these turrets across the valley of Alcantara, each of which rises 23½ ft. above the roof of the aqueduct; and on the outside of the enclosing walls is a footpath, one on each side, about 5 ft. wide, reaching quite across the valley, and rendered secure by a parapet wall of a proper height.

This work was but little damaged by the great earthquake in 1755. It was begun in the year 1713, and finished in 1732. It is kept in repair by a tax upon butchers' meat, equal to the 30th part of a halfpenny on every pound.—*R. Evans.*

Art. III. *Domestic Notices.*

ENGLAND.

Middlesex. — The want of a county hall, for the election of members of parliament, has long been felt; and, as the circumstance has lately been noticed by one of the sheriffs, we hope the want will be supplied at no great distance of time. There are two descriptions of halls, either of which we should like to see erected for this purpose. An oblong temple, somewhat after the manner of that of Birmingham, but without the external appearance of being of two stories, which is false with reference to the interior; or a circular building, with a dome in the centre, somewhat in the manner of a design given by Durand for a national temple, and which he presents in his work as preferable to the Pantheon at Paris. Whatever design may be adopted, we hope that money will not be thrown away either in stone or marble columns, or in casing the walls with any description of stone. There is not a greater incongruity in the art of building, in our opinion, than that of mixing stone and brick in the same edifice. Not that we would altogether exclude stone, for we have no objection to it as facings for openings, or for copings, and it is essential for steps; but on no account whatever would we case a brick wall with it, nor would we form columns of it, where economy was any object, higher than the plinth. Good brickwork, covered with cement, or merely with repeated thin coats of stone lime and sharp sand (Baillie's composition, as it is commonly called), is stronger as a whole, and it is far more durable than any stonework whatever, unless this stonework is in entire blocks. A nobler temple might be built on some rising ground in, or north of, the Regent's Park, entirely of brick and mortar, arched over, and with hollow copper doors and window frames, so as wholly to exclude timber, than has ever yet appeared on the face of the earth. A great mistake in modern buildings, in our opinion, consists in bestowing too little expense on the design, and too much, in proportion, on the materials. For example, the National Gallery at Charing Cross is being cased with a stone which is not one whit more durable than good cement, or mortar of stone lime and sharp sand; while the walls are not nearly so strong as if they had been wholly of brick, and yet much more expensive. It will be said, perhaps, that they look better: but how long will this be the case? Have not the stone walls at the New Palace, Pimlico, been three or four times cleaned since they were commenced? The truth is, that, in London, buildings covered with cement, not only look just as well as those covered with stone, when new, and the work is properly done; but, in a few years, both stone-cased buildings and stucco-

cased buildings will be so discoloured by smoke, as merely to be distinguished as not being brick.

The National Picture Gallery at Charing Cross.—The following excellent observations occur in a note to *Beaumont's Hints on preventing Damage by Fire.* We give them, partly because they are strictly in accordance with sentiments which we have always held and expressed, and partly for the sake of offering an additional remark:—

"We may yet hope ultimately to see the National Picture Gallery of Great Britain removed from the heart of the most smoky city in the universe. Sea-coal smoke, the enemy of every thing, is particularly destructive to pictures. Independent of its corrosive action on colour and canvass, its sooty coating defaces the finer tints of a picture in a single season, and in a few years entirely conceals them. If any one doubts this, let him look on the pictures in Guildhall and other halls in the city: they are masses of soot and dirt. Let him notice the paintings in the Council Chamber of the Royal Academy, they are *chefs-d'œuvre* of the artists of our own time; but they are so overlaid with smoke and dirt as to be turned from with disgust. Let him call to mind the vividness of West's Lazarus, when it was first exhibited a few years since, or the freshness of Hogarth's pictures, when first hung up at the National Gallery in Pall Mall, and then regard their present obscured condition. It is painfully demonstrated to every artist's eye, that paintings hung up in London in a few years become lost as objects of admiration. The general effect of a celebrated painting may be discovered through the coating that defaces it, as a swathed mummy may indicate the form of the body within; but the life-touches of the gifted artist, the effects which gave delight and instruction, are buried. This continual picture-smoking can only be got rid of by frequent picture-cleaning; but it is well known that every scouring, re-canvassing, and touching up of a fine picture, is fraught with its destruction. Paint, like every thing else, wears away under solvents and attrition, and although it may be said that, with a delicate and skilful hand, the abrasion in cleaning is of the most superficial kind, yet the beauty of a fine picture often depends on touches equally superficial. How many of the finest specimens of Venetian colouring have disappeared under the hands of the cleaners. What we now see are, at best, but clever imitations of what the pictures were; generally, it may be said, if pictures are smoked and not cleaned, they become invisible, and if they be cleaned (repeatedly) they are destroyed. Either way they are lost; the only way to save them is not to smoke them.

"The National Picture Gallery, therefore, ought not to be in the midst of the smoke of London, nor even within its reach. The northern extremity of the Regent's Park is the nearest approximation to London smoke that can safely be trusted. The higher part of Greenwich Park, near Blackheath, would be still more free from smoke; but the centre of Richmond Park would insure the purest atmosphere.

"The opponents to a suburban site for the National Gallery insist that, unless the pictures be near the centre of the metropolis, few will take the trouble to go to them. The same thing was predicted of the Zoological Gardens; and yet, in fact, ten times as many persons travel thither as ever assembled at the Tower or Exeter Change. It may safely be inferred, that, if the National Picture Gallery were near these gardens, ten times as many would visit the pictures there as have seen them in Pall Mall. A walk or short ride out of the murky atmosphere of London gives a bodily refreshment to the visiter, which adds to the zest of his mental treat, while the purer air of the country shows the subjects to advantage. The public are not insensible to this double pleasure. It is again said, that artists will not spare the time to go far from their painting-rooms: the answer is, major objects must not be sacrificed to minor ones. The first consideration is, the lasting preservation of these gems of art; the second, that their merit may be seen in perfection. Unless these points be well secured, the artists themselves cannot enjoy the benefit of the pictures for any length of time. The permanent interests of artists and the arts must be consulted: the desire of the artists of

the day is a minor consideration; but even this, if rightly directed, must lead them to prefer a pure atmosphere to a foul one. In the intensity of their pursuit, they are too apt to forget the care of their health: it is for their good that they should be forced to take exercise and fresh air; their walks across the park would probably not take up more time than, for want of exercise, they would lose by the interruptions of health; or, if they would for a while pass the greater part of their time at the gallery, as is done when studying abroad, they can board and lodge as cheap in the villages as in the heart of the metropolis, and acquire a stock of health as well as knowledge. The preservation of the pictures; the seeing them in perfection; the essential interests of the arts and artists, all indicate the necessity of placing the national collection of pictures out of the smoke of London."

We have always objected to Charing Cross as a situation for a gallery of pictures, for another reason, viz., that, in winter and in spring, when most people are in London, there is a stratum of foggy air which extends over the low grounds on both sides of the Thames, even as far as the New Road. As a proof of this, let any person go into the Panorama of London, at the Colosseum, and mount to the height requisite to see the picture; he will then find an atmosphere supplied with light from the roof much clearer than it is in the open air of the street. The light in this case is supplied from a superior stratum comparatively free from fog. By placing the National Gallery in the central circle of the Regent's Park, and lighting it from the roof, the light would be supplied from a still higher stratum, because that circle is on higher ground. In 1829, writing from Munich for the *Magazine of Natural History*, we suggested the idea of a circular building to serve as a national gallery, and to form a ring round the entire circumference of the inner circle, now occupied as a nursery; the interior to be covered with glass, as a public tropical garden. We supposed only a small segment of the ring of gallery to be built at first, but that it should be increased with the increase of the collection of pictures. The glass we proposed to be raised on cast-iron columns, to the height of 100 ft. or 150 ft. from the soil, and the interior to be heated by fires, which should communicate their heat to the walks, and to lakes of water, and rocks; the smoke to be carried off by the hollow cast-iron columns which supported the roof. This roof we proposed to consist of an indefinite number of small cast-iron glazed sash frames (say 3 ft. square), hung on pivots, overlapping each other like panes of glass, to be raised simultaneously to the perpendicular, to admit showers of rain, or to any inferior angle at pleasure, by machinery moved by steam.

A Stove for heating by Gas is now exhibiting by the inventor, Mr. Ricketts, in Agar Street, Strand, London. The construction, as may easily be imagined, is perfectly simple; indeed, it consists in merely placing a casing of metal round a jet or jets of gas, so as to receive the heat given out by the jets. We have more than once heated a small green-house by placing an earthen bell or cone, 3 ft. high, and 18 in. in diameter at the bottom, over a basin of refuse grease, in which was a floating wick; but the use of gas is a much more elegant mode, and more free from soot and smell. The expense of heating a room 18 ft. square, and 9 ft. high, by Mr. Ricketts's plan, and according to the present price of gas in London, is from a penny to three farthings per hour, according to the external atmosphere. Wherever gas can be laid on, Mr. Ricketts's stove, or any mode of obtaining heat from gas, may be most conveniently and economically adopted in rooms and public offices, where there is no fireplace, where it is desirable to avoid dust, or where the occupant is his own servant. A gentleman living in chambers, or a single lady in a lodging, might, with one of Mr. Ricketts's stoves, not only heat the room without either labour or dust, but might boil whatever water might be wanted, or cook their own food.

Mr. Ricketts's Gas Cooking Apparatus, with a roaster, boiler, steamer, oven, and stewing-plate, is a piece of furniture of very great merit. It is a great simplification of Mr. Hicks's mode, which we were the very first to

describe in our *Encyclopædia of Cottage Architecture;* and it has the merit of being cheaper. It will hardly be believed how much more economical a gas cooking apparatus is than one in which coal, or any other common fuel, is used. It is difficult to overcome the prejudices of mankind in favour of established modes; and there is, therefore, little chance of gas cooking becoming general during the present generation. It is clear, however, from what Mr. Hicks has invented, and Mr. Ricketts and others applied, that the whole of the heating, cooking, and lighting of London might be conducted by gas at an immense saving to the public; and totally without our present smoky atmosphere. Were this the case, coal fires could only be necessary in large manufactories, where the smoke would be effectually consumed. Were gas only about one half cheaper than it is (and the new French mode of obtaining it from water promises to effect this), it would, in spite of our prejudices, be very frequently used both for heating and cooking.

Derbyshire. — Plans and estimates for building a bridge at Willington, either of stone or cast iron, are wanted. Application for particulars may be made to Messrs. Mouseley and Barber, solicitors, Derby. (*Morn. Chron.* Jan. 7.)

Norfolk. Norwich Castle. — We have had a grand stir here as to the restoration of the ancient castle of Norwich: it needed some repairs, and they were commenced without regard to maintaining the original mode of building. This brought on discussion, which ended in Mr. Blore being called in. His report is not yet published, and the works are suspended for the winter. I believe he will strike out a new course.

A new Catholic chapel is nearly completed at Cossey, from the designs of Mr. J. C. Buckler. Cossey, you will remember, contains Lord Stafford's splendid specimen of the domestic Gothic or Tudor architecture (not yet completed), noticed in your *Encyc. of Arch.*

Righting a Leaning Tower. — About two years since I had a mill tower built on marsh land, which leaned so much as to be seven courses of bricks out of the level. My plan of righting it was this: — On the highest side (level with the soil) I cut holes a foot square, and a foot distant from each other, so as to bear the resemblance of pigeon-holes. In each of these holes, or lockers, as they are called here, was inserted a screw between two planks, which extended the whole thickness of the wall transversely; the screws having pedestals of cast iron, so as to produce an even bearing on the planks. The screws were then set "taut" [tight], so as to press the planks downwards and upwards. The intervals between the lockers were next cut out, and the weight rested on the screws; they were then turned [slackened], so as to lower the highest side of the tower a course of brickwork at a time. As soon as the tower was, by this means, brought perpendicular, the intervals were blocked up, so as to receive the weight from off the screws. The screws were then taken away, the lockers filled up; and the job was complete. It is necessary to put a hoop round the tower before commencing, to prevent cracks, but the hoop need not be more than 2 in. by ¼ in. My apparatus is very compact, and packs in a moderate-sized box. The cost was only 10*l.* — *W. Thorold. Hethersett, near Norwich, Jan.* 15. 1835.

Northumberland. — *A General Cemetery* is proposed to be formed at Gateshead, near Newcastle, of which Mr. Dobson of that city is to be architect. (*Newcastle Courant*, Oct. 11. 1834.)

Somersetshire. — *Bath, Nov.* 5. 1834. You will see, by a well-written letter in the newspaper sent herewith, that the late *improvements* at the abbey are far from giving general satisfaction. The corporation have granted 6000*l.* towards the alteration of the interior of the Abbey Church. A difference of opinion prevails between the body corporate and the architect. The former wish to enclose the transepts within the screen, and to exclude them; while the latter wishes to leave them in their present state. In this case, the architect is right, perhaps accidentally. The abbey itself has been treated like a doll; one child cutting off an ear, another a nose, and another striking

out the eyes, until the original figure is scarcely distinguishable. The square-faced towers which rose flush upon the eastern front have been removed, and, in their place, octagonal towers are now building. The vestry is to be removed to the north transept; and the old and curious building used as a vestry, which time had mellowed into agreement with the older structure, and which is connected with many pleasing associations, is to be destroyed. Would that the hand could be stayed which executes the uncalled-for mutilations now proceeding of a noble specimen of ancient art! Prior Holloway, the last of the priors of Bath, was noted for his pursuit of alchymy. Being disturbed in his studies, he is recorded, in an old poem, to have hidden his crucible in the wall of the abbey, and to have been unable, after searching for it, again to discover it. The workmen employed upon the south side of the abbey are said to have found in the wall a crucible, which may possibly have been that of the unlucky alchymist. Some improvements have been made in the city, which are very much approved of. One of the most conspicuous of these is the removal of the bookseller's shop at the corner of Orange Grove, by which, instead of the inconvenient narrow passage which used to lead from the Grove to the Parades, a handsome carriage road is made. The viaduct across the valley and brook between Brass Knocker and Limpley Stoke hills is completed. It was begun on the 3d of June, and was finished on the 25th of October; little more than four months. The bridge consists of 11 arches, each 21 feet span, and, including the walls, 39 feet high from the meadow: the road on the top is 33 feet wide; and the length of the bridge 340 feet. A committee have inspected the work, and have pronounced that great praise is due to Mr. David Aust, the architect.

The Alterations in Rivers Street and Bennet Street are nearly completed. The paving opposite the rooms has been levelled, and the slope, which rendered considerable care and caution necessary in driving carriages down it, is almost entirely avoided. In Brunswick Place, the road, which a few years since was raised, and constituted one of the improvements of the place, is this year again improved by being restored to its former condition. It would be economical if the commissioners were more considerate of the pockets of the housekeepers, before they practically effect their notions of improvement.

The new Road from Bath to Warminster is expected to be opened about May next. The latter town is now lighted with gas; and has, indeed, been so much improved lately, that a native, returning to it, after an absence of six or seven years, if he were to enter the town at night, would scarcely recognise it. Instead of seeing the decayed hall that cumbered the middle of the town, ruined houses, and gloomy cottages, he would behold an elegant town hall, a new street, a new church, and cheerful houses, exhibiting comfort and happiness; and all this not seen dimly as heretofore, but by the inspiring influence of a strong and brilliant gas light.

The Road from Bathwick to Stoke is rapidly approaching completion. Considerable opposition was raised to the bill by which this undertaking is authorised, and the active endeavours of Mr. Roebuck to carry the bill through the House of Commons exposed him, at the time, to much censure. It is now admitted that this road will form one of the chief improvements of the place. It passes along the old line of road until it nearly reaches Bathampton, when it takes the circuit of the hills, passing under Claverton, going on above the aqueduct, crossing the valley by a magnificent stone viaduct, and rising by a gentle ascent the hill opposite, until it reaches Stoke. It passes in this course along the beautiful and prettily wooded valley of the Avon, and presents much varied and magnificent scenery. The best mode of seeing the views it affords is, perhaps, to follow the road from Stoke to Bath. The view from above Stoke, and through the woods with which the hill about it is enriched, is truly grand. At the bottom of the hill, the aqueduct and viaduct vie with each other as works of art, and are noble specimens of masonry. Passing on towards Bath, the road opens the beautiful scenery about Malley, and pre-

sents in pretty combination the villages of Bathford, Colerne, and Batheaston. It then goes forward in an almost level line to Bath.

The New Assize Courts at Devizes.— The tenders of Messrs. Young and Benoni White of Devizes have been accepted, for the erection of the new Assize Courts. The work is to be completed by the 1st of June next, and active preparations are making for proceeding with it immediately. I understand a beautiful design for this building was sent in by your correspondent, Mr. Lamb.

The Streets of Frome are now lighted with gas, and the effect is brilliant.

Surrey.— A New Church has lately been erected at Clapham, chiefly at the expense of two or three individuals, from the design of Lewis Vulliamy, Esq. in the Gothic style, with tracery window heads, crocketed pinnacles, a tower, and small spire about 70 or 80 feet high, and catacombs under the whole body of the church. The walls are of brick, covered with Roman cement to imitate stone. The west front is rather rich. It will contain 450 persons in free seats, and 800 in pews, including galleries: total, 1250. Cost 6500*l.*

Art. IV. *Retrospective Criticism.*

Erratum. — In p. 46. line 15 from the top, omit "not."— *J. R.*

Mr. Bakewell's Bricks. (Vol. I. p. 312.) — Mr. Bakewell informs us that the bricks made by his machine are not indented at the ends, as we had supposed and stated, though he could easily alter the mould in such a manner as to indent them, if that were considered desirable. He also states that he can make them quite smooth on the upper and under surface, if required; and can mould them so as to suit any kind of coping, cornice, architrave, facings of windows or other openings; for Gothic labels, or for round or square pillars or columns. Wm. Rhodes, Esq., of Hackney Road, London, has adopted Mr. Bakewell's machines in his brick manufactory; and J. C. Dyer, Esq., who is building an elegant mansion near Manchester, contemplates using Mr. Bakewell's bricks in his garden walls, as, from their smoothness and small joints, they are less likely to harbour insects. Mr. Bakewell differs entirely from us, as to the merits of brickwork covered with stucco. He says, "the artificial, temporary, and expensive practice of daubing over fronts with mortar would not so generally prevail," if gentlemen who construct houses for the purpose of residing in, themselves, were not either parsimonious or economical. "Although it must be acknowledged," he continues, "that houses of this description look handsome for a while, yet, comparatively, in a short time they become mean and shabby in the extreme, and require to be almost continually polished or repaired; and, even when most perfect, we know it to be a deception, and intended to hide deformity and worthlessness; and the defects above mentioned can be only partially amended, by incurring the enormous expense of periodical painting at short intervals: but, to perform that operation on the beautiful and durable bricks that are now manufactured, would be as preposterous and absurd as that artist who should disgrace himself by covering over, even with the most delicate pigments, those beautiful and inimitable specimens of the fine arts, the Laocoon, the Apollo Belvedere, or the Venus de Medicis." (*Observations*, &c., p. 18.)

Churches and Chapels erecting in the Country. — Your correspondents sending information of churches and chapels erecting in the country do not forward sufficient particulars of them to be of much use, except only as local news. Perhaps a hint from you might induce some of them to send the number of sittings the proposed church or chapel is to contain; distinguishing free seats from pews, the cost, the style of architecture, whether with a gallery, tower, turrets, vaults, catacombs, portico, &c. &c. The materials used, &c., might also be mentioned. From such information architects would be able to compare the relative value and cost in various parts of the country; and

this would greatly assist young beginners in estimating their designs: as many may lose employment, let their designs be ever so good, from estimating the cost too high. — *W. J. S. Waterloo Place, Jan.* 2. 1835.

The Earl of Plymouth's Monument on Bromsgrove Lickey (Vol. I. p. 379.) — In the description your correspondent R. gives of this design, he observes, "It differs from other monuments of this description, in having the faces of the pedestal battering; that is, the die of the pedestal is narrower at the top than at the bottom where it rests on the plinth, which harmonises with the pyramidal form of the upper part." When R. made this observation, he must surely have overlooked the lofty obelisk, formed of a single piece of Haytor granite, erected at the end of Farringdon Street, to the memory of the late Alderman Waithman; of which (I believe really the first example of its kind) Mr. Elmes, the architect who designed and superintended its execution, has made not only the pedestal but the steps (as R. calls it) "battering;" or, in other words, inclined from a perpendicular. This, I know as a subscriber, was objected to by some of the committee, and Mr. Elmes was asked for a precedent in ancient art: ideas were also submitted to him of Grecian and Roman pedestals; but the architect was firm, saying, an Egyptian obelisk ought to have an Egyptian pedestal, which he succeeded in executing. The accompanying sketch (*fig.* 24.) will testify that this statement is correct.

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The foundation was a solid bed of concrete, formed from the chippings of the obelisk and ground lias lime. Then was planted a cube of granite 7 ft. square and 4 feet thick, which reached as high as the circular pavement composed of eight pieces of granite. Each step is of one solid piece; the pedestal is of another single piece; the cap of another; and the shaft of the obelisk of another single piece 20 ft. high.

Alderman Harmer laid the first stone (the lower step) on a Tuesday morning, and the obelisk was all up and finished by 8 o'clock on the Wednesday morning.

If you wish a description and drawing of the machinery and means used, I can procure them for you.—*A Subscriber to the Waithman Obelisk. London, Jan.* 3. 1835.

We should be glad to see the description and drawing, kindly offered by our correspondent; and, if we do not use them, we will return them immediately. — *Cond.*

The Romans conveyed Water in Tubes. — This has been proved by your correspondent (Vol. I. p. 373.), as far as respects leaden pipes; and the following passage from the *Beauties of England and Wales* proves that it is equally true with reference to tubes of earthenware. It also shows, like many other modern discoveries of antiquities, that there are not so many things truly new as we are apt to imagine. In levelling the ground near the house of Soddington, the ancient but now desolated seat of the family of Blount, in the parish of Mamble in Worcestershire, in 1807, the workmen "dug up a vast number of curious tubes, which seemed to have formed an

ancient aqueduct, the existence of which was previously unknown to any of the inhabitants, even by tradition. These tubes were formed of the finest clay, and were exceedingly well baked; being of a grey colour on the outside, and, when broken, of a dark colour in the interior. They appeared to be exactly of the same kind of composition as the common Roman urns. Each tube was about 2 ft. long, and about 4 in. in the total diameter, though the aperture for conveying the water was not more than 1¾ in. At one end were hollow tenons, and mortises at the other, all so exactly filled as to be air-tight without the intervention of mortar." [This description would answer perfectly well for the earthenware tubes manufactured at Adams's Pottery near Shepherd's Bush.] "They were laid in the direction of a spring, which flows at the distance of a mile and a half from Soddington, and they were traced a considerable part of the way to it." There were also found here a "focus formed of thin bricks," a brick pavement, a complete brick-kiln, consisting, by computation, of 10,000 bricks, &c. Over this brick-kiln and immense number of bricks, a bed of earth was formed, in which an oak tree, rotten with age, actually grew. Mr. Milner, in the *Gent. Mag.* (vol. lxxvii.), conjectures that this brick-kiln was built for the Romans, or for the use of their civilised British subjects, about 418, or just before the former left the island. But I am deviating from my subject, which was to confirm the statement of T. F. L.— *An Architectural Antiquary. York, Dec.* 1834.

Art. V. *Queries and Answers.*

A Lecture Room, about 18 ft. wide and 13 ft. high, is wanted to be divided off, so as to allow of two classes meeting therein at one time without incommoding each other. The principal object required is the effectual deadening of noise: there must be a doorway between the two divisions, and it is essentially requisite that the partition should be so constructed as to be easily removed and replaced, in order to admit of the room being frequently used for lectures. It is necessary to state, that, from the situation of the room, there are no means of raising the partition bodily by pulleys, like a sliding shutter; nor can it be drawn into a recess in the wall, nor sunk beneath the floor.

I beg earnestly to solicit the attention of your readers to the above; and if any gentleman will point out how the object may be attained at a small expense, he will much oblige, not only myself, but a great many members of a respectable public society.— *Pit. London, Jan.* 8. 1835.

The Coldness of the Feet of Persons who are employed in sedentary occupations, or in any occupation which does not require exercise, whether in offices, shops, or private rooms, is well known. What are the best practical means of avoiding this evil in a house already built, or can it be avoided at all? I am aware that, where a house is to be built, the plan described at length, in your *Encyc. of Arch.*, of heating the floor with flues under it, is decidedly the best; and I am persuaded that the time will arrive when it will be generally adopted, not only in cottages in the country, but in the ground floors or living-floors of all dwelling-houses whatever, and also in all shops and offices: but what is to be done in the meantime? Can steam or hot water be so applied as to remove this evil? or can German or Swedish (that is, iron) stoves be used without contaminating the atmosphere of the room? It would be rendering an essential service to the public, if some of your readers would take up this subject, and discuss it in all its various bearings, and especially in its practical application.— *James Nevin. Blackwall Street, Poplar, Dec.* 1834.

Morgan's Patent Self-feeding Apparatus for heating and ventilating.— Have you seen this apparatus? and, if you have, will you have the goodness to state how it acts, and to give me your opinion of it?— *John Green. Manchester, Dec.* 1834.

We saw this apparatus last summer, in the large circular glass house in the Surrey Zoological Gardens. It consists of two parts; a case 3 ft. on the side, and 6 ft. high, containing the fireplace and boiler; and over them the fuel. The pipes for circulating the water are attached to the boiler by union screws, which renders the apparatus portable. The coals are placed on the upper part of the apparatus, on a shelf hinged on one side, having the other side supported by a chain, one end of which is attached to a roller. This roller is connected with clockwork machinery, which lowers it at a certain rate per hour, and consequently allows the coal to drop gradually into the fire. A similar plan for feeding coals to boiler furnaces was put in execution some years ago, by an ironmonger in Long Acre, but he had the addition of a spiky roller to force out the coals. The same description of spiky roller has also been placed at the bottom of a hopper, for moving the coals and dropping them regularly into the fire, as seeds are dropped into the ground by a drilling machine.

With respect to our opinion of Mr. Morgan's plan, we think it exceedingly ingenious, and that is the best that we can say of it. It has cost the inventor a great deal of money; and, besides, has tempted him to leave an established business in the country to settle in London, for the sake of displaying it. Had Mr. Morgan been a regular reader of that excellent periodical the *Mechanics' Magazine*, he would have been less sanguine in his expectations.—*Cond.*

Freezing of Water in Pipes used for heating. — It frequently happens that, through carelessness, inadvertency, or from a severe frost taking place unexpectedly, the water in pipes used for heating freezes, and bursts the pipes. Sometimes it freezes, and, from the orifices of the pipes being covered, or from there being no boiler, as in the case of Perkins's and Weeks's apparatus, the circumstance of the water being frozen is unknown to the person who is employed to light the fire. Where there is a boiler, as soon as the ice is thawed, the pipes empty themselves, and the boiler, becoming empty also, is liable to be cracked; where there is no boiler, a portion of the ice in the tubes next the fire is turned into high-pressure steam, and the pipes are sure to burst. A case has lately come under my inspection, in which some pipes (hermetically sealed) were burst in this way. No fires had been made in the furnace for 8 or 9 months, and one being made during the late severe frost, it had no sooner begun to heat the pipes, than the expansion tube, which happened fortunately to be near the furnace, burst, and filled the house, which happened to be a green-house, with steam. This may afford a hint to Mr. Perkins to have the expansion tube of his apparatus always as near to the furnace as possible. In the case I mention, had it been at a distance from it, the pipes would probably have burst in the place where they were most heated; viz. in the coil round the fire, and in that case the furnace and brickwork would have been blown up, and probably the man who was attending the fire killed. I consider it the duty of every one who has any new description of apparatus at work, to give an account of whatever accidents may result from the use of it, for the benefit both of the inventor and of the public; but this is not the whole of my object at present. I wish to ask you, or your readers, whether some fluid might not be employed for circulation in these tubes, which would not freeze at the same temperature as water, and which, at the same time, would not carbonise and become dangerous like oil? Would not the saline mixture employed by Dr. Ure for boiling sugar be suitable? If you are acquainted with that eminent chemist, I am sure he could suggest to you a liquid composition suitable for the purpose in view, that would be at once safe and not too expensive. — *J. W. Paddington Parish, Jan. 5.* 1835.

We have seen the burst pipe, &c., mentioned by our correspondent, and think it necessary to state thus much, as he declines having his name published. We shall send a copy of his communication to Dr. Ure, and beg the favour of his opinion. — *Cond.*